

PROPERTY
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SERVICE PARTS
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McGRAW-EDISON

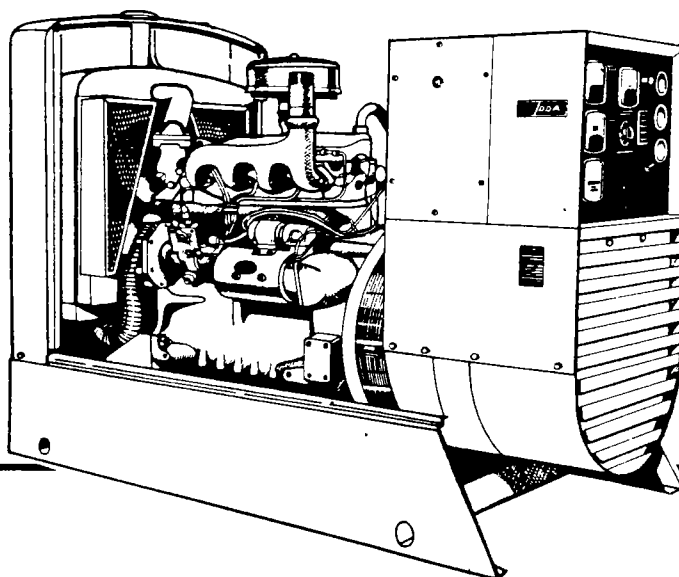
Onan

PARTS AVAILABILITY
NO LONGER GUARANTEED

Parts Manual

DDA

GenSet



944-0221

9-78 (SPECS A-C)

Replaces
2-78 (Specs A-C)

GENERAL INFORMATION

ONAN PARTS

All parts in this list are Onan parts. For Onan parts or service, contact the dealer from whom you purchased this equipment or your nearest authorized service station. To avoid errors or delay in filling your order, please refer to the Onan nameplate and give the complete MODEL, SPECIFICATION and SERIAL NUMBER.

Onan®				
ELECTRIC GEN SET				
MODEL <input type="text"/>				
SERIAL NO. <input type="text"/>				
IMPORTANT - ALWAYS GIVE ABOVE NOS. WHEN ORDERING PARTS				
TIME RATING <input type="text"/>				
HERTZ-60 RPM - 1800				
3 PHASE		1 PHASE		
KW <input type="text"/>	KVA <input type="text"/>	KW <input type="text"/>	KVA <input type="text"/>	
VOLTS 120/208	127/220	139/240	120/240	220/380
AMPS <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
VOLTS 240/416	240/480	254/440	277/480	347/600
AMPS <input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
P.F. 0.8		BAT. <input type="text"/>	VOLTS 115 <input type="text"/>	
FOR ELEC. EQPT. ONLY <input type="text"/>				
<small>INSUL. NEMA CLASS <input type="text"/> AMB 40°C MFD. BY ONAN DIV. OF ONAN CORP. MINNEAPOLIS, MN. U.S.A. 99-1034</small>				

JOHN DEERE PARTS

All John Deere parts must be ordered from your nearest authorized John Deere distributor. When ordering parts, refer to the John Deere nameplate giving the complete engine TYPE and SERIAL NUMBER.

JOHN DEERE	
<input style="width: 90%;" type="text"/>	<input style="width: 90%;" type="text"/>
TYPE	SERIAL

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INTRODUCTION

This catalog applies to the standard DDA Generator Sets as listed below. Parts are arranged in groups of related items. Each illustrated part is identified by a reference number corresponding to the same reference number in the parts list for that group. Parts illustrations are typical. Using the *Model* and *Spec No.* from the nameplate, select the parts from this catalog that apply to your set. Unless otherwise mentioned in the description, parts are interchangeable between models. Right and left sides are determined by facing the engine end (front) of the set.

SET DATA TABLE

MODEL AND SPEC NO.	ELECTRICAL DATA				
	WATTS	VOLTS	HERTZ	WIRE	PHASE
25.0 DDA-515R/*	25,000	£	50	12	1 or 3
30.0 DDA-3R/*	30,000	120/240	60	3	1
30.0 DDA-15R/*	30,000	£	60	12	1 or 3
30.0 DDA-9XR/*	30,000	347/600	60	4	3

* - The Specification Letter advances (A to B, B to C, ... Z to AA, etc.) with manufacturing changes.
A Specification Number, other than 1, designates customer option(s).

£ - These sets are broad range reconnectable sets; refer to connection diagram inside AC Control Box Panel.

NOTE: Hertz is a unit of frequency equal to one cycle per second.

REPLACEMENT ENGINE

100-1265 1

Engine, Replacement (John Deere Model 4219D)

General Description:

Includes: Complete Cylinder Block, Fuel Pump, Fuel Filter, Oil Filter, Governor, Fan Blades (Pusher Type), Water Pump, Oil Pan, Oil Fill, Exhaust Manifold, Flywheel Housing, Starter Adapter, Fan Belt, Alternator Drive Belt and Flywheel.

Excludes: Alternator, Temperature Sender, Oil Pressure Sender, Starter, Air Cleaner and Radiator.

ENGINE PARTS

Engine parts modified or added by Onan will be in this parts list and have Onan part numbers. These supersede similar parts listed in the John Deere manual.

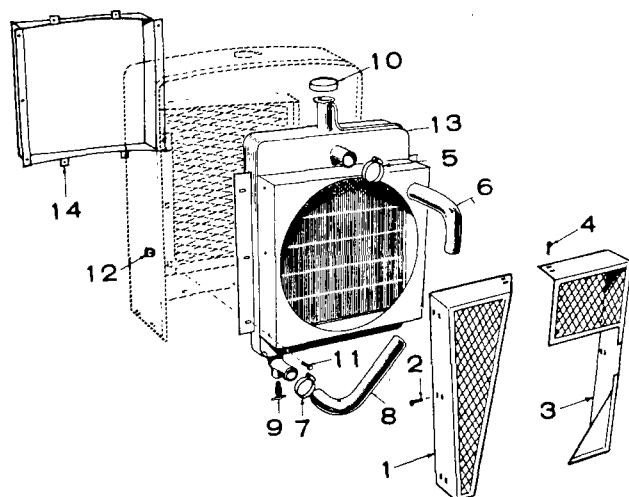
All John Deere parts must be ordered from your nearest authorized John Deere distributor. When ordering parts, refer to the John Deere nameplate giving the complete engine TYPE and SERIAL NUMBER.

JOHN DEERE	
<input type="text"/>	<input type="text"/>
TYPE	SERIAL

NOTICE!

ITEMS REFERENCED AS **OPTIONAL** INDICATE PART IS FACTORY INSTALLED AND MAY NOT BE APPLICABLE TO ALL MODELS. FOR FIELD CONVERSIONS ADDITIONAL PARTS ARE USUALLY REQUIRED.

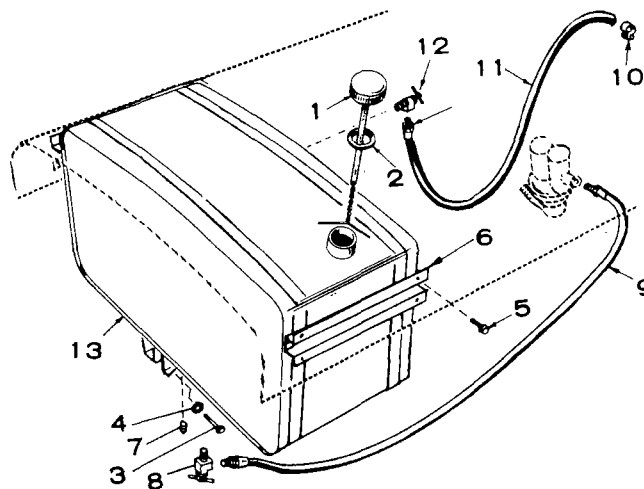
COOLING SYSTEM



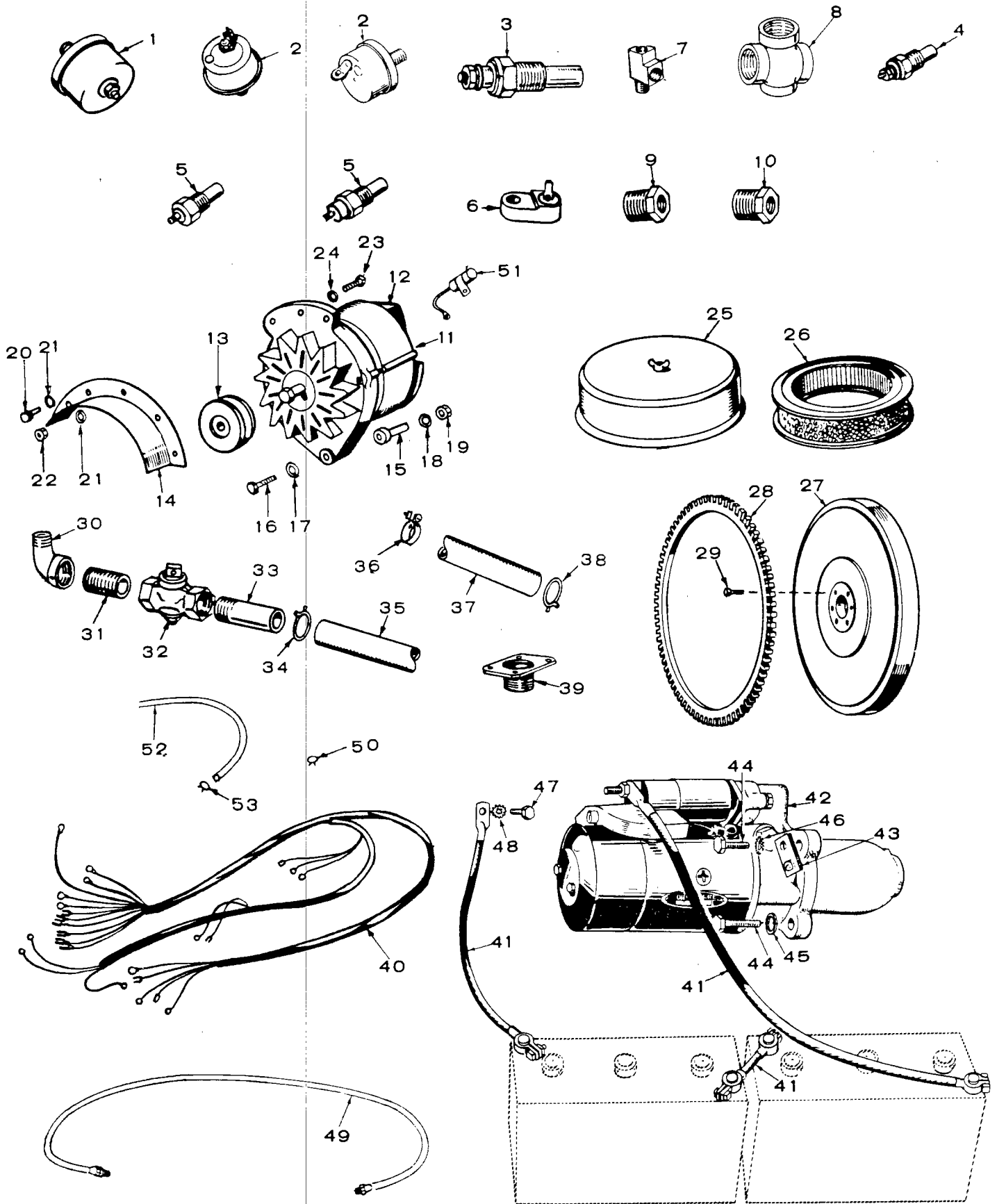
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	130-0934	1	Guard, Fan - Right Side
2	815-0181	4	Screw, Tapping, Thread Cutting - Hex Head with External Tooth Washer (#10-32 x 1/2")
3	130-0935	1	Guard, Fan - Left Side
4	815-0181	4	Screw, Tapping, Thread Cutting - Hex Head with External Tooth Washer (#10-32 x 1/2")
5	503-0365	2	Clamp, Hose
6	503-0727	1	Hose, Rubber - Upper
7	503-0365	2	Clamp, Hose
8	503-0635	1	Hose, Rubber - Lower
9	504-0028	1	Valve - Drain
10	130-0449	1	Cap - Radiator
11	821-0014	8	Screw, Self-Locking - Hex Head (5/16-18 x 1/2")
12	870-0113	8	Nut, Clinch (5/16-18)
13	130-0815	1	Radiator
14	405-1054	1	Flange, Duct - Optional

MOUNTED DAY TANK - OPTIONAL (Housed Sets Only)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	159-0512	1	Cap and Indicator
2	159-0751	1	Gasket, Gas Cap
3	812-0158	2	Screw, Machine - Round Head (1/4-20 x 2")
4	850-0040	2	Washer, Lock - Spring (1/4)
5	821-0010	8	Screw, Self-Locking - Hex Head (1/4-20 x 1/2")
6	159-0489	1	Strap Assembly, Mounting
7	505-0057	1	Plug, Pipe - Square Head
8	504-0013	1	Valve, Globe
9	501-0027	1	Hose, Rubber
10	503-0685	1	Clamp, Hose
11	501-0205	1	Hose, Rubber
12	504-0007	1	Valve, Globe
13	159-1025	1	Tank, Fuel (20 gallon)



MISCELLANEOUS ENGINE PARTS



MISCELLANEOUS ENGINE PARTS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	SENDER, OIL PRESSURE			30	505-0050	1	Elbow, Pipe - Street - Oil Drain (1/2" x 90°)
	193-0108	1	Spec A and B	31	505-0100	1	Nipple, Pipe - Close - Oil Drain (1/2")
	193-0244	1	Begin Spec C	32	504-0011	1	Valve, Shutoff - Oil Drain
2	SWITCH, LOW OIL PRESSURE			33	505-0185	1	Nipple, Pipe - Half (1/2" x 1-1/2") - Oil Drain
	309-0169	1	Standard (One Fault Light Sets)	34	503-0197	1	Clamp, Hose - Oil Drain
	309-0169	1	Pre-Alarm (Five Fault Light Sets)	35	503-0098	1	Hose, Rubber - Oil Drain (17") (Bulk)
	309-0064	1	Shutdown (Five Fault Light Sets)	36	148-0274	1	Bracket, Hose Mounting
3	SENDER, OIL TEMPERATURE (Optional)			37	503-0098	1	Hose, Rubber - Breather Extension (24") (Bulk)
	193-0202	1	Spec A and B	38	503-0197	1	Clamp, Hose
	193-0249	1	Begin Spec C	39	154-1674	1	Adapter, Exhaust Manifold - Spec A Only
4	SENDER, WATER TEMPERATURE			40	338-0771	1	Harness, Engine Wiring
	193-0104	1	Spec A and B	41	CABLE, BATTERY		
	193-0246	1	Begin Spec C		416-0530	1	Negative (16")
5	SWITCH, HI WATER TEMPERATURE				416-0531	1	Positive (24")
	309-0179	1	Standard (One Fault Light Sets)		416-0446	1	Jumper
	309-0178	1	Pre-Alarm (Five Fault Light Sets)	42	STARTER		
	309-0179	1	Shutdown (Five Fault Light Sets)		191-1097	1	+Spec A (Delco Remy #1113402)
6	309-0269	1	Switch, Low Engine Temperature (Optional)		191-1117	1	†Begin Spec B (Nippondenso #028000-3930)
7	502-0058	1	Tee, Pipe (1/8")	43	332-1292	1	Terminal Board
8	505-0763	1	Cross, Pipe (1/8")	44	800-0051	3	Screw, Cap - Hex Head (3/8-16 x 1-1/4" lg)
9	505-0131	1	Reducer, Pipe (3/4" to 3/8")	45	850-0050	2	Washer, Lock - Spring (3/8")
10	505-0117	1	Reducer, Pipe (1/2" to 3/8")	46	856-0010	1	Washer, Lock - External/Internal (3/8")
11	191-0665	1	*Alternator (Motorola #70D44039B01) Includes Regulator	47	800-0090	1	Screw, Cap - Hex Head (1/2-13 x 1" lg)
12	191-0732	1	*Regulator, Voltage - Part of Alternator	48	856-0008	1	Washer, Lock - External/Internal (1/2")
13	191-1099	1	Pulley	49	LINE, FUEL		
14	191-0725	1	Guard, Belt		501-0227	1	Inlet
15	232-2183	1	Spacer, Stepped		501-0226	1	Outlet
16	800-0058	1	Screw, Cap - Hex Head (3/8-16 x 3" lg)	50	503-0685	1	Clamp, Hose
17	526-0035	2	Washer, Flat (17/32" ID x 7/8" OD x 1/8" Thk)	51	312-0201	1	Condenser
18	850-0050	1	Washer, Lock - Spring (3/8")	52	503-0482	1	Hose, Air Cleaner Connect
19	862-0003	1	Nut, Hex (3/8-16)	53	503-0465	2	Clamp, Hose
20	800-0024	1	Screw, Cap - Hex Head (5/16-18 x 1/2" lg)				
21	850-0045	2	Washer, Lock - Spring (5/16")				
22	862-0015	1	Nut, Hex (5/16-18)				
23	800-0030	1	Screw, Cap - Hex Head (5/16-18 x 1-1/4" lg)				
24	526-0115	1	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)				
25	140-1083	1	Cleaner, Air (Includes Element)				
26	140-1089	1	Element, Air Cleaner				
27	104-0871	1	Flywheel (Includes Ring Gear)				
28	104-0859	1	Gear, Ring (Part of Flywheel)				
29	800-0094	4	Screw, Cap - Hex Head (1/2-13 x 2" lg)				

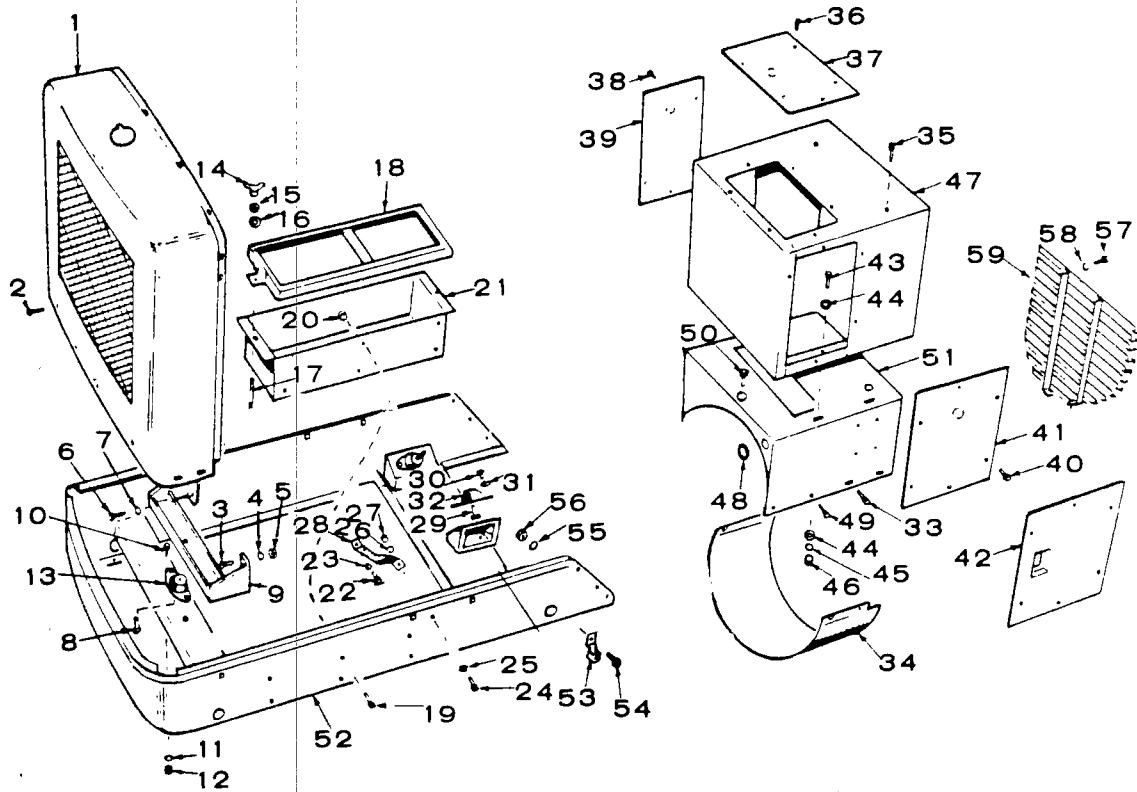
* - For components, contact your nearest Motorola Dealer or Motorola Automotive Products, Inc., 9401 W. Grand Ave., Franklin Park, Illinois 60131.

* - Included in Optional Vernier Throttle Assembly.

+ - For components, contact your nearest Delco Remy Dealer or Delco Remy Division of General Motors Corporation, Anderson, Indiana 46011.

† - For components, contact your nearest Nippondenso Dealer or Detroit Branch, Nippondenso Sales, Inc. 21840 West Nine Mile Road, Southfield, Michigan 48075, U.S.A.

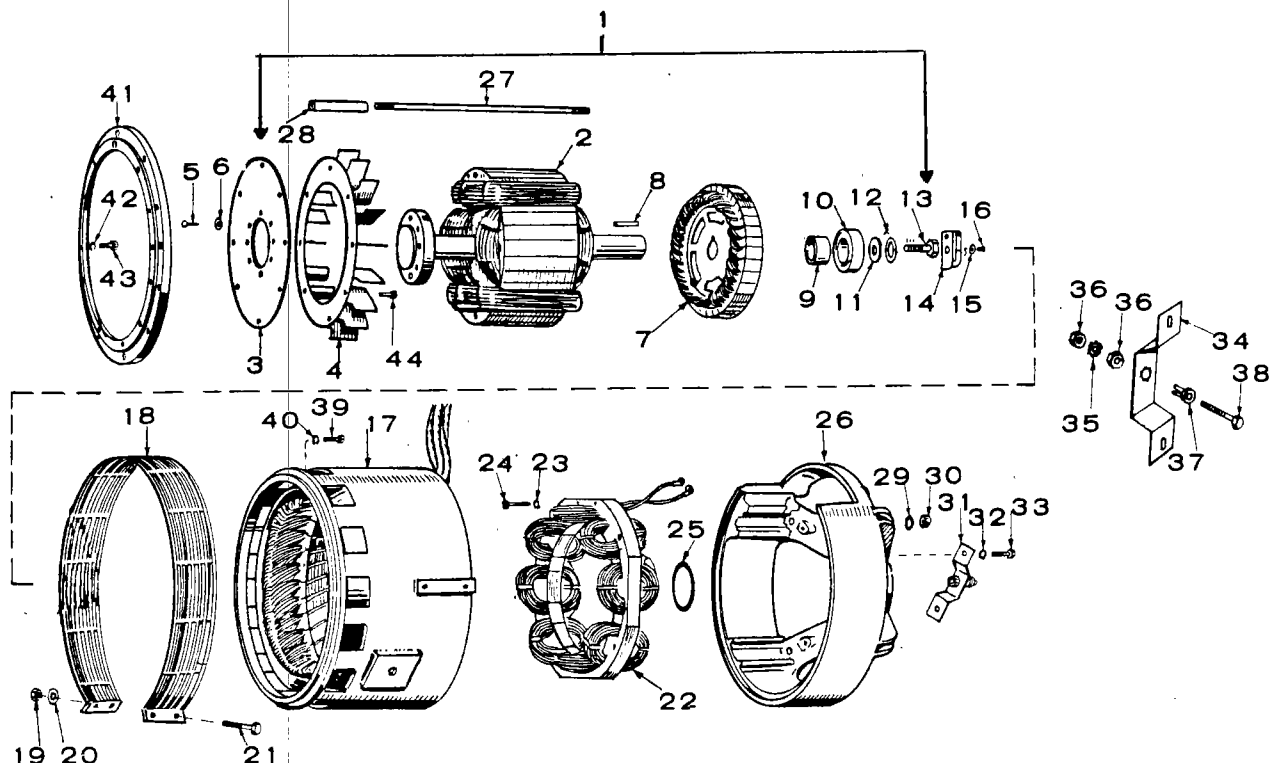
CHASSIS



CHASSIS

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	405-1811	1	Panel, Radiator (Also used with Housed Sets)	31	850-0055	4	Washer, Lock - Spring (7/16)
2	821-0014	8	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	32	402-0030	2	Mount, Vibration
3	800-0095	2	Screw, Cap - Hex Head (1/2-13 x 2-1/4")	33	821-0010	7	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
4	850-0060	2	Washer, Lock - Spring (1/2)	34	234-0361	1	Wrapper, End Bell - Generator
5	862-0016	2	Nut, Hex (1/2-13)	35	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2") - Control Box Mounting
6	800-0132	2	Screw, Cap - Hex Head (5/8-11 x 1-1/2")	36	815-0350	6	Screw, Tapping - Hex Head, Slotted (#10-32 x 3/8")
7	850-0070	2	Washer, Lock - Spring (5/8)	37	301-3156	1	Panel, Blank - Top (Also used on Housed Sets)
8	800-0520	1	Screw, Cap - Special Hex Head, Unplated (3/4-10 x 1")	38	815-0350	6	Screw, Tapping - Hex Head, Slotted (#10-32 x 3/8")
9	403-1110	1	Support, Engine	39	301-3156	1	Panel, Blank - Left Side
10	800-0090	2	Screw, Cap - Hex Head (1/2-13 x 1")	40	815-0350	6	Screw, Tapping - Hex Head, Slotted (#10-32 x 3/8")
11	850-0060	2	Washer, Lock - Spring (1/2)	41	301-3156	1	Panel, Blank - Right Side (Also used on Housed Sets)
12	862-0016	2	Nut, Hex (1/2-13)	42	301-3192	1	Panel, Circuit Breaker - Right Side - Optional (Used with Line Load Circuit Breaker)
13	402-0371	1	Mount, Vibration	43	800-0003	4	Screw, Cap - Hex Head (1/4-20 x 1/2)
14	865-0007	2	Nut, Wing (5/16-18)	44	526-0018	8	Washer, Flat (17/64" ID x 5/8" OD x 1/16" Thk)
15	850-0045	2	Washer, Lock - Spring (5/16)	45	850-0040	4	Washer, Lock - Spring (1/4)
16	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" Thk)	46	862-0001	4	Nut, Hex (1/4-20)
17	520-0663	2	Stud (5/16-18 x 3-1/4")	47	301-3155	1	Housing, Control Box
18	416-0480	1	Frame, Hold-down - Battery	48	508-0203	1	Bushing, Nylon (3/4" ID x 1-9/32" OD)
19	821-0029	6	Screw, Self-Locking - Hex Head (3/8-16 x 3/4")	49	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
20	870-0281	6	Nut, Self-locking (3/8-16)	50	821-0010	1	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
21	416-0666	1	Tray - Battery	51	301-3154	1	Saddle - Control Box Housing
22	800-0090	1	Screw, Cap - Hex Head (1/2-13 x 1")	52	403-1111	1	Chassis - Engine/Generator (Also used with Housed Sets)
23	856-0013	1	Washer, Lock - External/Internal Tooth (1/2)	53	332-1473	1	Lug, Solderless
24	800-0091	1	Screw, Cap - Hex Head (1/2-13 x 1-1/4")	54	800-0028	1	Screw, Cap - Hex Head (5/16-18 x 1" lg)
25	856-0013	1	Washer, Lock - External/Internal Tooth (1/2)	55	856-0008	1	Washer, Lock - External/Internal (5/16")
26	850-0050	1	Washer, Lock - Spring (1/2)	56	862-0015	1	Nut, Hex (5/16-18)
27	862-0016	1	Nut, Hex (1/2-13)	57	812-0146	4	Screw, Machine - Round Head (1/4-20 x 3/8")
28	337-0090	1	Lead, Electrical - Ground (Flexible)	58	850-0040	4	Washer, Lock - Spring (1/4)
29	800-0520	2	Screw, Cap - Special Hex Head, Unplated (3/4-10 x 1")	59	234-0370	1	Grille, Inlet, Air
30	800-0071	4	Screw, Cap - Hex Head (7/16-14 x 1")				

GENERATOR

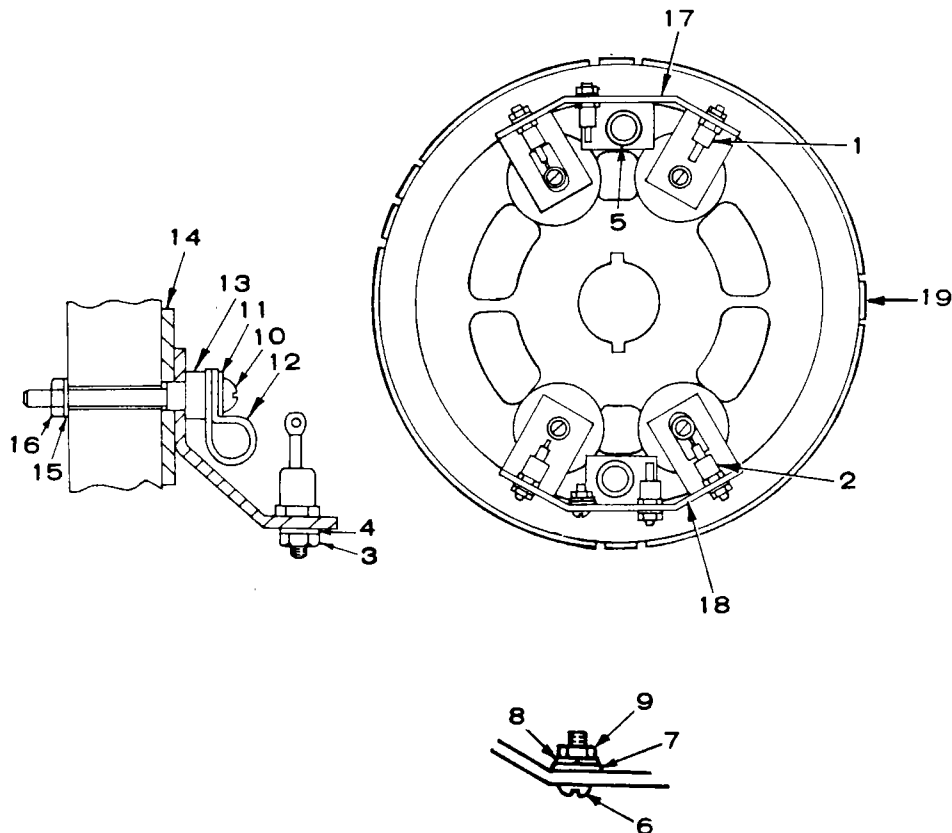


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	ROTOR ASSEMBLY, WOUND (Includes Parts Marked *)			22	220-2353	1	Stator, Exciter
			Begin Spec D	23	850-0040	4	Washer, Lock - Spring (1/4")
	201-2669	1	3R Sets	24	800-0009	4	Screw, Cap - Hex Head (1/4-20 x 1-1/2" lg)
	201-2666	1	9XR, 15R and 515R Sets	25	509-0125	1	Seal, Oil - "O" Ring
			Specs A through C	26	211-0185	1	End Bell, Generator
	201-1719	1	3R Sets	27	STUD, GENERATOR THROUGH		
	201-1716	1	9XR, 15R and 515R Sets		520-0721	4	3R Sets
2	*ROTOR, WOUND				520-0718	4	9XR, 15R & 515R Sets
	201-1654	1	3R Sets	28	503-0611	4	Hose, Rubber
	201-1657	1	9XR, 15R & 515R Sets	29	850-0040	4	Washer, Lock - Spring (3/8")
3	232-2078	1	*Disk, Generator Drive	30	862-0011	4	Nut, Hex (3/8-16)
4	205-0089	1	*Fan, Generator	31	150-1456	1	Contact Assembly, Overspeed Switch (Includes Parts Marked †)
5	805-0033	8	*Bolt, Hex Head (5/8-11 x 1" lg)	32	850-0040	2	Washer, Lock - Spring (1/4")
6	526-0259	8	*Washer, Flat (11/16" ID x 1-3/8" OD x 12 Ga. Thk)	33	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2" lg)
7	201-1739	1	*Rotor Assembly, Exciter (See Separate Group for Components)	34	150-1356	1	†Bracket, Overspeed Switch Mounting
8	515-0145	1	*Key	35	853-0013	1	†Washer, Lock - External (1/4")
9	232-2102	1	*Spacer, Sleeve	36	862-0001	2	†Nut, Hex (1/4-20)
10	510-0101	1	*Bearing, Ball	37	870-0250	1	†Nut, Insulator
11	526-0238	1	*Washer, Flat (13/16" ID x 2" OD x 3/16" Thk)	38	150-0723	1	†Point Assembly, Overspeed
12	850-0079	1	*Washer, Lock - Spring (3/4")	39	800-0051	8	Screw, Cap - Hex Head (3/8-16 x 1-1/4" lg)
13	800-0513	1	*Screw, Cap - Hex Head (3/4-10 x 1-1/2" lg)	40	850-0050	8	Washer, Lock - Spring (3/8")
14	150-0717	1	Switch, Overspeed	41	231-0188	1	Adapter, Generator
15	856-0010	1	Washer, Lock - External/Internal (3/8")	42	850-0050	12	Washer, Lock - Spring (3/8")
16	812-0189	1	Screw, Machine - Round Head (3/8-16 x 3/4" lg)	43	802-0072	12	Screw, Cap - Socket Head (3/8-16 x 1" lg)
17	STATOR ASSEMBLY, WOUND			44	805-0018	8	Bolt, Hex Head (3/8-16 x 1" lg)
	220-1552	1	3R Sets				
	220-1599	1	9XR Sets				
	220-1451	1	15R Sets				
	220-1994	1	515R Sets				
18	234-0368	1	Screen, Generator Air Outlet				
19	862-0001	2	Nut, Hex (1/4-20)				
20	850-0040	2	Washer, Lock - Spring (1/4")				
21	800-0008	2	Screw, Cap - Hex Head (1/4-20 x 1-1/4" lg)				

* - Parts Included in Wound Rotor Assemblies.

† - Parts Included in 150-1456 Overspeed Switch Assembly.

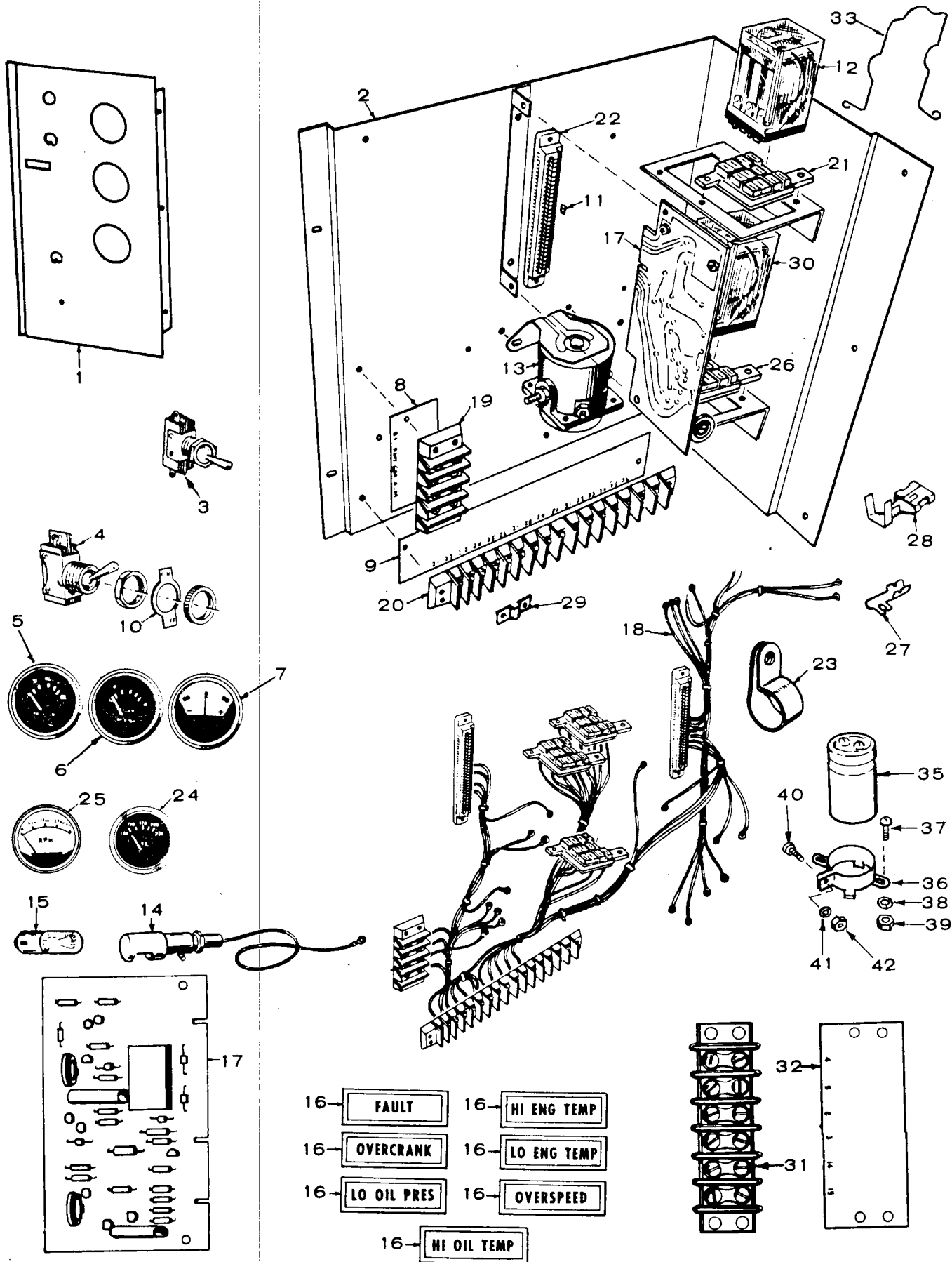
EXCITER ROTOR



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	201-1739	1	Rotor Assembly, Wound - Exciter (Complete)
1	358-0016	3	Rectifier, Diode - Positive
2	358-0015	3	Rectifier, Diode - Negative
3	870-0053	6	Nut, Hex (#10-32)
4	850-0030	6	Washer, Lock - Spring (#10)
5	508-0093	2	Grommet, Rubber
6	813-0100	2	Screw, Machine - Round Head (#10-32 x 1/2")
7	526-0008	2	Washer, Flat (13/64" ID x 7/16" OD x 1/32" THK)
8	850-0030	2	Washer, Lock - Spring (#10)
9	870-0053	2	Nut, Hex (#10-32)
10	813-0110	4	Screw, Machine - Round Head (#10-32 x 2")

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
11	526-0009	4	Washer, Flat (7/32" ID x 1/2" OD x 1/16" THK)
12	332-0050	2	Clamp, Loop
13	508-0124	4	Spacer, Stepped
14	508-0156	4	Washer, Flat - Fiber (19/64" ID x 1-7/8" OD x 1/8" THK)
15	850-0030	5	Washer, Lock - Spring (#10)
16	870-0053	4	Nut, Hex (#10-32)
17	363-0054	1	Heat Sink, Rectifier - Positive
18	363-0055	1	Heat Sink, Rectifier - Negative
19	201-1737	1	Rotor, Exciter

CONTROL (Engine Portion)



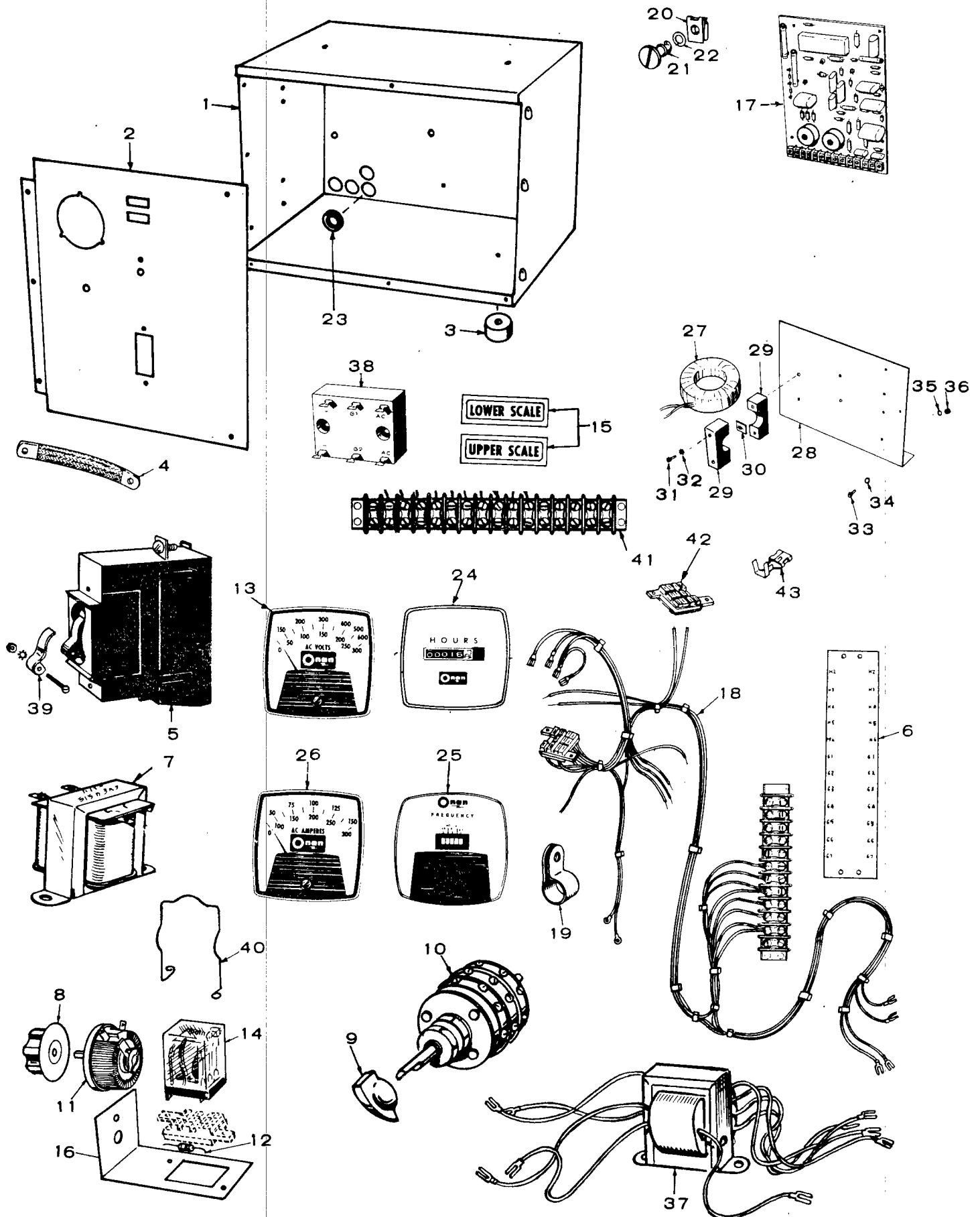
CONTROL (Engine Portion)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	PANEL, ENGINE CONTROL			25	302-0749	1	Tachometer, Electrical - Optional
	301-3165	1	One Fault Light Sets	26	323-0764	1	*Socket, Relay
	301-3267	1	Five Fault Light Sets	27	332-1269	As Req	*Contact, Electrical (PC Boards)
2	301-3253	1	Bracket, Control Mounting	28	332-1280	As Req	*Terminal, Lug
3	308-0138	1	Switch, Toggle (SPDT)	29	332-1043	1	*Jumper
4	308-0002	1	Switch, Toggle (SPST) - Spec A through B	30	307-1061	1	Relay, Armature - Starter Protection
				31	332-0699	1	*Block, Terminal (6 Place) - Five Fault Light Sets
5	GAUGE, OIL PRESSURE			32	332-1240	1	Marker, Strip - Five Fault Light Sets
	193-0107	1	Spec A through B				
	193-0243	1	Begin Spec C	33	307-1157	3	Clip, Relay Retaining
6	GAUGE, WATER TEMPERATURE			34	308-0327	1	Switch, Toggle (SPDT) - Penn State
	193-0106	1	Spec A through B				
	193-0245	1	Begin Spec C	35	356-0072	1	+Capacitor (During Spec C)
7	302-0061	1	Ammeter (30-0-30)	36	356-0070	1	+Bracket (During Spec C)
8	332-1239	1	Strip, Marker	37	812-0076	2	+Screw, Machine - Round Head (#8-32 x 5/16" lg) - During Spec C
9	332-1241	1	Strip, Marker				
10	308-0003	1	Plate, Switch (On/Off) - Spec A through B	38	850-0025	2	+Washer, Lock - Spring (#8) - During Spec C
11	332-1276	4	Plug, Key				
12	307-1058	2	Relay, Armature (1) Start-Disconnect (1) Ignition	39	860-0008	2	+Nut, Hex (#8-32) - During Spec C
13	307-1031	1	Relay, Armature - Start Solenoid	40	812-0065	1	+Screw, Machine - Round Head (#6-32 x 5/8" lg) - During Spec C
14	322-0149	1	Light, Panel - Spec A through B	41	850-0020	1	+Washer, Lock - Spring (#6) - During Spec C
15	322-0004	1	Lamp (12 Volt) - Spec A through B				
16	LIGHT, INDICATOR			42	860-0006	1	+Nut, Hex (#6-32) - During Spec C
	322-0128	1	Fault	ASSOCIATED MOUNTING HARDWARE - NOT ILLUSTRATED (Select as Applicable)			
	322-0107	1	Overcrank - Five Fault Light Sets	812-0066	As Req		Screw, Machine - Round Head (#6-32 x 3/4")
	322-0108	1	Low Oil Pressure - Five Fault Light Sets	812-0077	As Req		Screw, Machine - Round Head (#8-32 x 3/8")
	322-0109	1	Hi Engine Temperature - Five Fault Light Sets	815-0026	As Req		Screw, Machine - Truss Head (#10-32 x 3/8")
	322-0110	1	Low Engine Temperature - Five Fault Light Sets	813-0098	As Req		Screw, Machine - Round Head (#10-32 x 3/8")
	322-0111	1	Overspeed - Five Fault Light Sets	815-0203	As Req		Screw, Machine - Round Head, Brass with External Tooth Lockwasher (#10-32 x 7/8")
	322-0112	1	Hi Oil Temperature - Optional				
17	MODULE, CONTROL (See Separate Group for Components)			853-0003	As Req		Washer, Lock - External Tooth (#6)
	300-0733	1	Cycle Cranker - Standard	850-0025	As Req		Washer, Lock - Spring (#8)
	300-0679	1	Engine Monitor - Standard	526-0049	As Req		Washer, Flat - Brass (.200" ID x 7/16" OD x 1/32" Thk)
	300-0714	1	Cycle Cranker - Five Fault Light Sets	850-0030	As Req		Washer, Lock - Spring (#10)
	300-0730	1	Engine Monitor - Penn State	856-0003	As Req		Washer, Lock - External/Internal Tooth (#10)
	300-0681	1	Engine Monitor - Five Fault Light Sets				
18	HARNESS, WIRING (Includes Parts Marked *)			853-0008	As Req		Washer, Lock - External Tooth (#10)
			One Fault Light Set	860-0006	As Req		Nut, Hex (#6-32)
	338-0528	1	Spec A through B	860-0008	As Req		Nut, Hex (#8-32)
	338-1056	1	Begin Spec C	870-0053	As Req		Nut, Hex (#10-32)
			Five Fault Light Sets	871-0010	As Req		Nut, Hex - Brass (#6-32)
	338-0534	1	Spec A through B	518-0295	As Req		Pin, Round Head, Non-Metallic (PC Board Fastener)
	338-1066	1	Begin Spec C				
19	332-0537	1	*Block, Terminal (4 Place)				
20	332-0795	1	*Block, Terminal (16 Place)				
21	323-0765	2	*Socket, Relay				
22	332-1271	2	*Housing, Connector (PC Boards)				
23	332-0051	1	Clamp, Loop				
24	GAUGE, OIL TEMPERATURE - OPTIONAL						
	193-0187	1	Spec A through B				
	193-0248	1	Begin Spec C				

* - Parts Included in Wiring Harness.

+ - Serial Cutoff Number Not Available at This Time.

CONTROL (AC Portion)

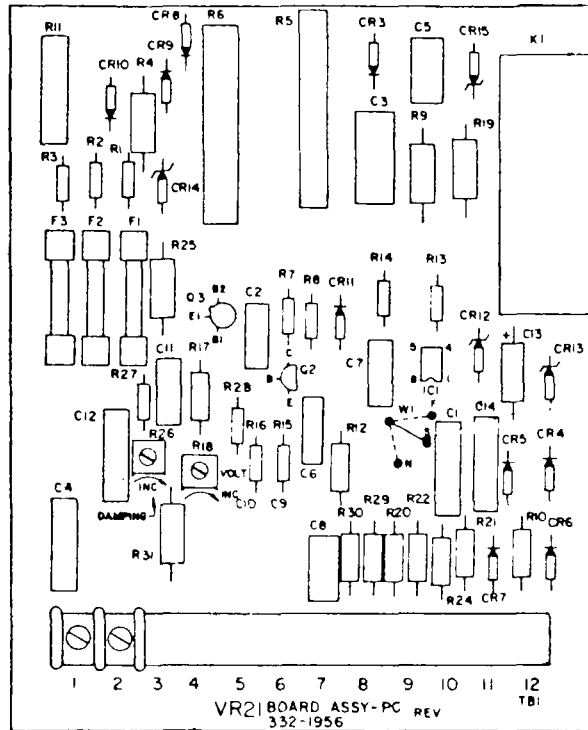


CONTROL (AC Portion)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	301-3158	1	Box, Control	28	302-0729	1	Bracket, Current Transformer - Sets With Meter Panel
2	PANEL, CONTROL			29	CLAMP, TRANSFORMER MOUNTING - SETS WITH METER PANEL		
			Sets Without Meter Panel		302-0235	2	Upper - 3R Sets
	301-3822	1	3R Sets		302-0235	3	Upper - 9XR, 515R & 15R Sets
	301-3821	1	9XR Sets		302-0236	2	Lower - 3R Sets
	301-3274	1	515R & 15R Sets		302-0236	3	Lower - 9XR, 515R & 15R Sets
			Sets With Meter Panel	30	302-0253	As Req	Shim, Transformer Mounting - Sets With Meter Panel
	301-3169	1	3R Sets	31	SCREW, MACHINE - ROUND HEAD - SETS WITH METER PANEL		
	301-3342	1	9XR Sets		813-0110	4	3R Sets (#10-32 x 2" lg)
	301-3170	1	515R & 15R Sets		813-0110	6	9XR, 515R & 15R Sets (#10-32 x 2" lg)
3	402-0078	4	Dampener, Vibration	32	WASHER, LOCK - INTERNAL (Sets With Meter Panel)		
4	337-0049	1	Strap, Ground		854-0010	4	3R Sets (#10)
5	320-0431	1	Breaker, Circuit (2 Ampere)		854-0010	6	9XR, 515R & 15R Sets (#10)
6	STRIP, MARKER			33	815-0203	1	Screw, Machine - Round Head - Sets With Meter Panel (#10-32 x 7/8" lg)
	332-1248	1	Sets Without Meter Panel	34	526-0049	2	Washer, Flat - Sets With Meter Panel
	332-1242	1	Sets With Meter Panel				(.200" ID x 7/16" OD x 1/32" Thk)
7	TRANSFORMER, VOLTAGE			35	856-0003	1	Washer, Lock - External/Internal - Sets With Meter Panel (#10)
	315-0342	1	Spec A through B	36	871-0010	3	Nut, Hex - Sets With Meter Panel (#10-32)
	315-0431	1	Begin Spec C	37	315-0384	1	Reactor
8	303-0032	1	Knob, Rheostat	38	305-0524	1	Rectifier Assembly
9	303-0076	1	Knob, Voltmeter Selector	39	320-0307	1	Lock, Circuit Breaker Handle - Penn State
10	SWITCH, ROTARY			40	307-1157	1	Clip, Relay Retaining - 515R & 15R Sets
	308-0012	1	9XR, 515R & 15R Sets Without Meter Panel	41	*BLOCK, TERMINAL		
					332-0607	1	12 Place - Sets Without Meter Panel
	308-0284	1	9XR, 515R & 15R Sets With Meter Panel		332-0795	1	16 Place - Sets With Meter Panel
11	303-0170	1	Rheostat (3500-Ohm - 25 Watt)	42	323-0764	1	*Socket, Relay - 515R & 15R Sets
12	350-0556	1	Resistor (47,000-Ohm, 1/2 Watt) - 15R & 515R Sets	43	332-1280	As Req	*Terminal, Lug
13	VOLTMETER						ATTACHING HARDWARE - NOT ILLUSTRATED (Select as Applicable)
	302-0421	1	3R Sets (0-300 Volt)		812-0059	As Req	Screw, Machine - Round Head (#6-32 x 1/4")
	302-0779	1	9XR Sets (0-750 Volt)		812-0061	As Req	Screw, Machine - Round Head (#6-32 x 3/8")
	302-0718	1	515R & 15R Sets (0-300, 0-600 Volt)		812-0066	As Req	Screw, Machine - Round Head (#6-32 x 3/4")
14	307-1061	1	Relay, Voltage Selector - 15R & 515R Sets		812-0077	As Req	Screw, Machine - Round Head (#8-32 x 3/8")
15	LAMP, INDICATOR - 515R & 15R SETS				815-0026	As Req	Screw, Machine - Truss Head (#10-32 x 3/8")
	322-0130	1	Lower Scale		815-0203	As Req	Screw, Machine - Round Head, Brass with External Tooth Lockwasher (#10-32 x 7/8")
	322-0131	1	Upper Scale		800-0024	As Req	Screw, Cap - Hex Head (5/16-18 x 3/8")
16	301-3244	1	Bracket, Relay Mounting - 515R & 15R Sets		800-0045	As Req	Screw, Cap - Hex Head (5/16-18 x 1/2")
17	REGULATOR ASSEMBLY, VOLTAGE (See Separate Group for Components)				526-0049	As Req	Washer, Flat, Brass (.200" ID x 7/16" OD x 1/32" Thk)
	332-1268	1	Spec A and B		850-0020	As Req	Washer, Lock - Spring (#6)
	332-1956	1	Begin Spec C		853-0003	As Req	Washer, Lock - External Tooth (#6)
18	HARNESS, WIRING (Includes Parts Marked *)				853-0008	As Req	Washer, Lock - External Tooth (#10)
			Sets Without Meter Panel		850-0045	As Req	Washer, Lock - Spring (5/16)
	338-0765	1	3R Sets		856-0008	As Req	Washer, Lock - External/Internal Tooth (5/16)
	338-0766	1	9XR Sets		871-0010	As Req	Nut, Hex - Brass (#6-32)
	338-0764	1	515R & 15R Sets		870-0053	As Req	Nut, Hex (#10-32)
			Sets With Meter Panel		862-0015	As Req	Nut, Hex (5/16-18)
	338-0735	1	3R Sets				
	338-0759	1	9XR Sets				
	338-0730	1	515R & 15R Sets				
19	332-0050	1	Clamp, Loop				
20	406-0332	2	Receptacle, Turnbutton Fastener				
21	406-0333	2	Stud, Turnbutton Fastener				
22	406-0334	2	Washer, Lock - Turnbutton Stud				
23	508-0001	4	Grommet Rubber				
24	METER, RUNNING TIME						
	302-0466	1	60 Hertz				
	302-0469	1	50 Hertz				
25	METER, FREQUENCY - SETS WITH METER PANEL						
	302-0221	1	60 Hertz				
	302-0256	1	50 Hertz				
26	AMMETER - SETS WITH METER PANEL						
	302-0412	2	3R Sets (0-250 Ampere)				
	302-0405	1	9XR Sets (0-50 Ampere)				
	302-0719	1	515R & 15R Sets (0-75, 0-150 Ampere)				
27	TRANSFORMER, CURRENT - SETS WITH METER PANEL						
	302-0209	2	3R Sets				
	302-0117	3	9XR Sets				
	302-0079	3	515R & 15R Sets				

* - Parts Included in Wiring Harness.

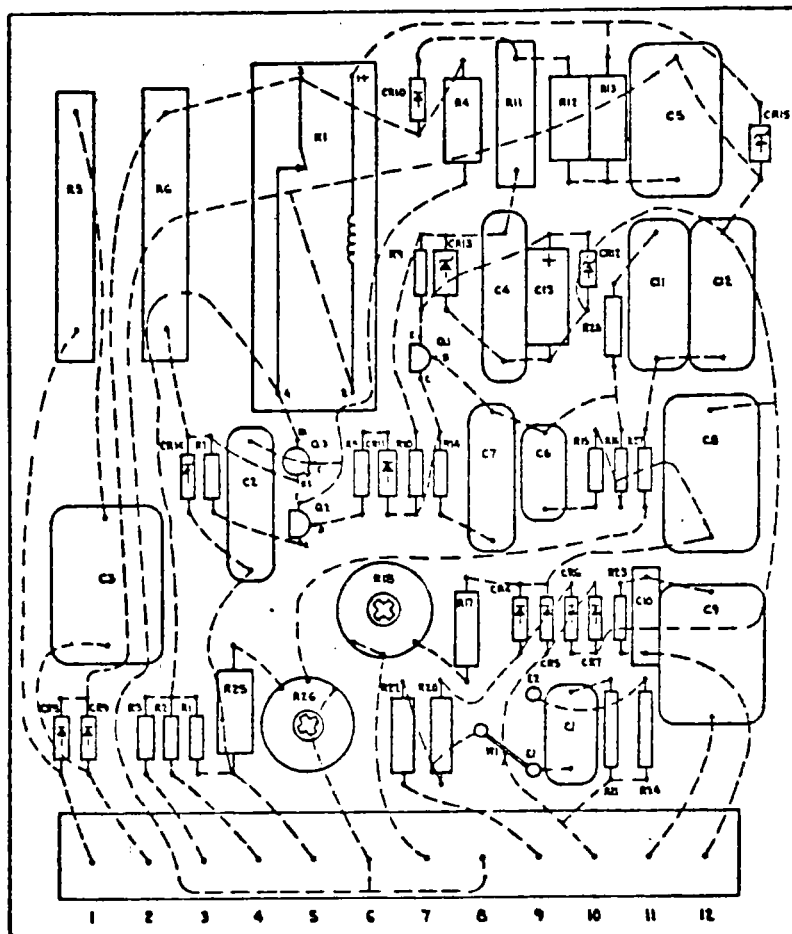
PRINTED CIRCUIT BOARD ASSEMBLY **(332-1956) Begin Spec C**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	332-1956	1	Board Assembly, Printed - Complete	R11	352-0151	1	Resistor - Fixed 5 Watt, 15,000-Ohm
C1,14	355-0042	2	Capacitor - 47 Mfd, 250 Volt	R12	351-0909	1	Resistor - 1/2 Watt, 90,900-Ohm
C2, C7	355-0043	2	Capacitor - 22 Mfd, 250 Volt	R13	350-0411	1	Resistor - 1/2 Watt, 10,000-Ohm
C3	355-0047	1	Capacitor - 47 Mfd, 400 Volt	R14	350-0443	1	Resistor - 1/2 Watt, 220,000-Ohm
C4, C12	355-0044	2	Capacitor - 47 Mfd, 250 Volt	R15, R27	350-0435	2	Resistor - 1/2 Watt, 100,000-Ohm
C5, C8	355-0046	2	Capacitor - 1 Mfd, 100 Volt	R17	351-0521	1	Resistor, Metal Film - 1/4 Watt, 12,100-Ohm
C6	355-0056	1	Capacitor - .33 Mfd, 250 Volt	R18	303-0210	1	Potentiometer - 5,000-Ohm, 1/2 Watt
C11	355-0048	1	Capacitor - 1 Mfd, 400 Volt	R20, 22			
C13	356-0039	1	Capacitor - Electrolytic 100 Mfd, 10 Volt	29 & 30	351-0520	4	Resistor - 1/4 Watt, 28,000-Ohm
CR3 Thru 11	357-0014	9	Rectifier - Silicon	R21	351-0522	1	Resistor - Metal Film - 1/4 Watt, 5,110-Ohm
CR12	359-0036	1	Diode - Zener 5.6 Volt	R24	351-0523	1	Resistor - Metal Film - 1/4 Watt, 8,870-Ohm
CR13	359-0025	1	Diode - Zener 20 Volt	R25, R31	350-1011	2	Resistor - 2 Watt, 10,000-Ohm
CR14	359-0026	1	Diode - Zener 18 Volt	R26	303-0211	1	Potentiometer - 1/2 Watt, 100,000-Ohm
F1, F2, F3	321-0204	3	Fuse 1/4 Amp	R28	350-0568	1	Resistor - 1/2 Watt, .47 Meg-Ohm
IC1	367-0005	1	Integrated Circuit	TB1	332-1252	1	Terminal Block
Q2	362-0017	1	Transistor - Silicon NPN	CR15	359-0015	1	Diode - Zener - 24 Volt
Q3	361-0004	1	Transistor - Unijunction		321-0163	6	Clip - Fuse
R1	350-0355	1	Resistor - 1/2 Watt, 47-Ohm	K1	307-1063	1	Relay, Magnetic Reed
R2, R3	350-0351	2	Resistor - 1/2-Watt, 33-Ohm	R9	350-1014	1	Resistor - 2 Watt, 13,000-Ohm
R4	350-1075	1	Resistor - 2 Watt, 4.7 Meg-Ohm	R19	350-1007	1	Resistor - 2 Watt, 6,800-Ohm
R5	353-0040	1	Resistor - Fixed 10 Watt, 270-Ohm				
R6	353-0039	1	Resistor - Fixed 15 Watt, 5,000-Ohm				
R7	350-0398	1	Resistor - 1/2 Watt, 3,000-Ohm				
R8, R16	350-0447	2	Resistor - 1/2 Watt, 330,000-Ohm				
R10	351-0885	1	Resistor - 1/2 Watt, 51,100-Ohm				

PRINTED CIRCUIT BOARD ASSEMBLY (AC)

332-1268 Spec A Through B



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
TB1	332-1252	1	Terminal Block	R18, R16	350-0447	2	Resistor (330,000-Ohm, 1/2 Watt)
C1	355-0018	1	Capacitor (.47., 100 Volt)	R9, R10	350-0423	2	Resistor (33,000-Ohm, 1/2 Watt)
C2, C7	355-0005	2	Capacitor (.22 Mfd., 200 Volt)	R11	352-0151	1	Resistor, Fixed (15,000-Ohm, 5 Watt)
C3, C9	355-0017	2	Capacitor (.47 Mfd., 400 Volt)	R12	350-1014	1	Resistor (13,000-Ohm, 2 Watt)
C4, C12	355-0006	2	Capacitor (.47 Mfd., 200 Volt)	R13	350-1007	1	Resistor (6,800-Ohm, 2 Watt)
C5, C8	355-0016	2	Capacitor (1 Mfd., 100 Volt)	R14	350-0443	1	Resistor (220,000-Ohm, 2 Watt)
C6	355-0015	1	Capacitor (.1 Mfd., 200 Volt)	R15, R27	350-0435	2	Resistor (100,000-Ohm, 1/2 Watt)
C10	355-0014	1	Capacitor (.047 Mfd., 200 Volt)	R17	351-0524	1	Resistor, Metal Film (13,000-Ohm, 1/4 Watt)
C11	355-0020	1	Capacitor (.1 Mfd., 400 Volt)	R18	303-0168	1	Potentiometer
C13	356-0039	1	Capacitor (100 Mfd., 10 Volt)	R20, R22	351-0520	2	Resistor, Metal Film (28,000-Ohm, 1/4 Watt)
CR4,5,6,7,8,9,10,11	357-0014	8	Rectifier, Silicon	R21	351-0522	1	Resistor, Metal Film (5,110-Ohm, 1/4 Watt)
CR12	359-0035	1	Diode, Zener (6.8 Volt)	R24	351-0523	1	Resistor, Metal Film (8,870-Ohm, 1/4 Watt)
CR13	359-0025	1	Diode, Zener (20 Volt)	R25	350-1011	1	Resistor (10,000-Ohm, 2 Watt)
CR14	359-0026	1	Diode, Zener (18 Volt)	R26	303-0164	1	Potentiometer
CR15	359-0015	1	Diode, Zener (24 Volt)				
K1	307-1063	1	Relay, Magnetic Reed				
Q1, Q2	362-0017	2	Transistor, Silicon				
Q3	361-0004	1	Transistor, Unijunction				
R1, R23	350-0355	2	Resistor (47-Ohm, 1/2 Watt)				
R2, R3	350-0351	2	Resistor (33-Ohm, 1/2 Watt)				
R4	350-1075	1	Resistor (4.7 Megohm, 2 Watt)				
R5	353-0040	1	Resistor, Fixed (270-Ohm, 10 Watt)				
R6	353-0039	1	Resistor, Fixed (5,000-Ohm, 15 Watt)				
R7	350-0396	1	Resistor (3,000-Ohm, 1/2 Watt)				

CRANKER CONTROL GROUP - 12 VOLT STANDARD

300-0733

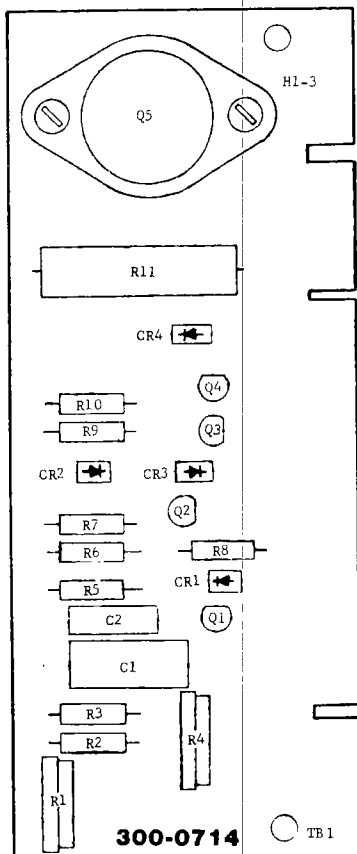


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
CR1	300-0733	1	Control, Cranker - 12 Volt
	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)
TB1	332-1285	1	Printed Wiring Board

OPTIONAL

CRANKER CYCLE CONTROL GROUP - 12 VOLT

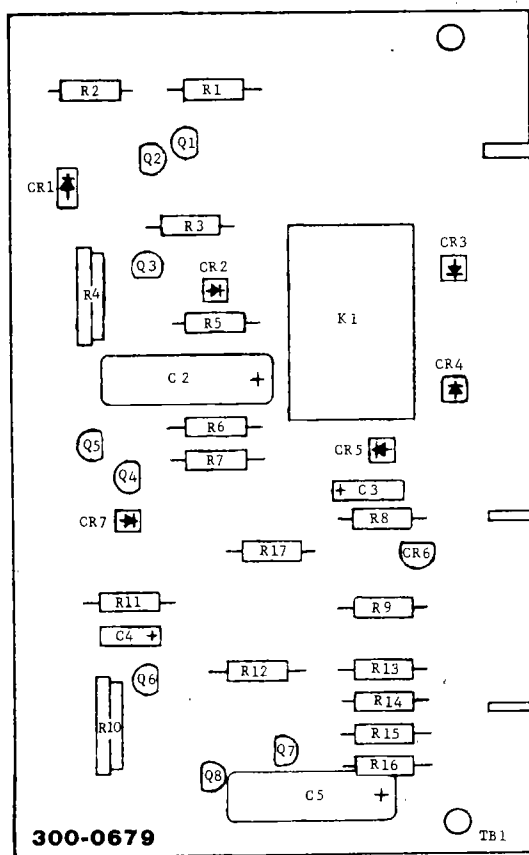
300-0714



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0714		Control, Cranker Cycle - 12 Volt
C1	356-0039	1	Capacitor, Electrolytic (100 Mfd, 10 Volt)
C2	355-0010	1	Capacitor, Plastic Dielectric (.0022 Mfd, 100 VDC, 10%)
CR1	359-0027	1	Diode, Zener
CR2	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)
CR3	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)
CR4	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)
H1	812-0061	2	Screw, Machine, Round Head (#6-32 x 3/8")
H2	853-0003	2	Washer, Lock - External Tooth (#6)
H3	860-0006	2	Nut, Hex (#6-32)
Q1	362-0008	1	Transistor
Q2	362-0008	1	Transistor
Q3	362-0017	1	Transistor
Q4	362-0026	1	Transistor
Q5	362-0019	1	Transistor
R1	303-0171	1	Potentiometer (100,000-Ohm, 1/4 Watt)
R2	350-0560	1	Resistor, Composition (0.1 Megohm, 1/2 Watt, 10%)
R3	350-0548	1	Resistor, Composition (10,000-Ohm, 1/2 Watt, 10%)
R4	303-0171	1	Potentiometer (100,000-Ohm, 1/4 Watt)
R5	350-0558	1	Resistor, Composition (68,000-Ohm, 1/2 Watt, 10%)
R6	350-0420	1	Resistor, Composition (24,000-Ohm, 1/2 Watt, 5%)
R7	350-0546	1	Resistor, Composition (6800-Ohm, 1/2 Watt, 10%)
R8	350-0520	1	Resistor, Composition (47-Ohm, 1/2 Watt, 5%)
R9	350-0548	1	Resistor, Composition (10,000-Ohm, 1/2 Watt, 10%)
R10	350-0500	1	Resistor, Composition (1-Ohm, 1/2 Watt, 10%)
R11	352-0152	1	Resistor, Wirewound (25-Ohm, 5 Watt, 5%)
TB1	332-1275	1	Printed Wiring Board

ENGINE CONTROL MONITOR GROUP - 12 VOLT

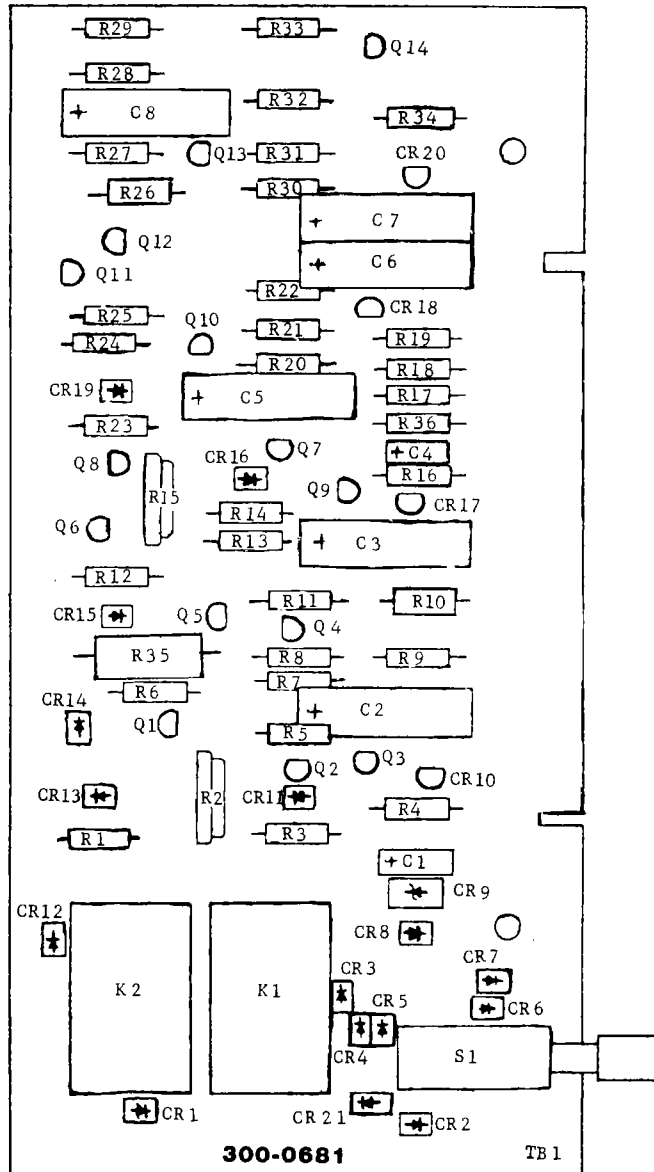
300-0679



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0679		Monitor, Engine Control - 12 Volt	R1	350-0536	1	Resistor, Composition (1000-Ohm, 1/2 Watt, 10%)
C1			Not used	R2	350-0526	1	Resistor, Composition (100-Ohm, 1/2 Watt, 10%)
C2	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd, 200 VDC, 10%)	R3	350-0548	1	Resistor, Composition (10,000-Ohm, 1/2 Watt, 10%)
C3	356-0040	1	Capacitor, Electrolytic (10 Mfd, 20 Volt)	R4	303-0169	1	Potentiometer (3.5 Meg Ohm, 1/4 Watt, 30%)
C4	356-0030	1	Capacitor, Electrolytic (1 Mfd, 35 Volt)	R5	350-0572	1	Resistor, Composition (1-Meg Ohm, 1/2 Watt, 10%)
C5	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd, 200 VDC, 10%)	R6	350-0552	1	Resistor, Composition (22,000-Ohm, 1/2 Watt, 10%)
CR1	359-0027	1	Diode, Zener (1 Watt, 7.5 Volt, 5%)	R7	350-0536	1	Resistor, Composition (1000-Ohm, 1/2 Watt, 10%)
CR2	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R8	350-0505	1	Resistor, Composition (2.7-Ohm, 1/2 Watt, 10%)
CR3	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R9	350-0517	1	Resistor, Composition (27-Ohm, 1/2 Watt, 10%)
CR4	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R10	303-0169	1	Potentiometer (3.5-Meg Ohm, 1/4 Watt, 30%)
CR5	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R11	350-0584	1	Resistor, Composition (10-Meg Ohm, 1/2 Watt, 10%)
CR6	364-0017	1	Diode, Rectifier (8 Amp, 30 Volt)	R12	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR7	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R13	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
K1	307-1039	1	Relay, Armature (12 Volt)	R14	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
Q1	361-0003	1	Transistor	R15	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
Q2	362-0025	1	Transistor	R16	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
Q3	362-0025	1	Transistor	R17	350-1128	1	Resistor, Composition (220-Ohm, 2 Watt, 10%)
Q4	361-0003	1	Transistor	TB1	332-1246	1	Printed Wiring Board
Q5	362-0025	1	Transistor				
Q6	362-0025	1	Transistor				
Q7	362-0008	1	Transistor				
Q8	362-0008	1	Transistor				

OPTIONAL
ENGINE CONTROL MONITOR GROUP - 12 VOLT
(5 Fault Lights)

300-0681



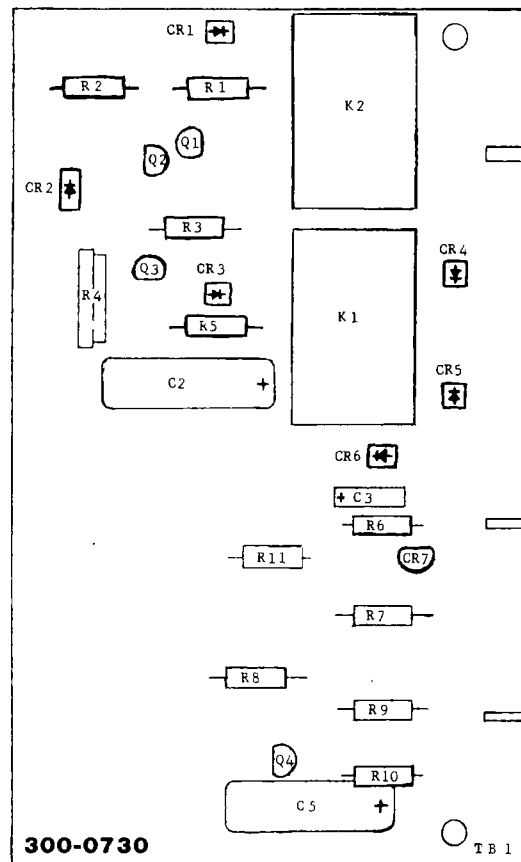
OPTIONAL

ENGINE CONTROL MONITOR GROUP - 12 VOLT (5 Fault Lights)

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0681		Monitor, Engine Control - 12 Volt - Optional	R2	303-0169	1	Potentiometer (3.5 Megohm, 1/4 Watt, 30%)
C1	356-0040	1	Capacitor, Electrolytic (10 Mfd, 20 Volt)	R3	350-0572	1	Resistor, Composition (1 Megohm, 1/2 Watt, 10%)
C2	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd, 200 VDC, 10%)	R4	350-0517	1	Resistor, Composition (27-Ohm, 1/2 Watt, 10%)
C3	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd, 200 VDC, 10%)	R5	350-0536	1	Resistor, Composition (1000-Ohm, 1/2 Watt, 10%)
C4	356-0030	1	Capacitor, Electrolytic (1 Mfd, 35 Volt)	R6	350-0548	1	Resistor, Composition (10,000-Ohm, 1/2 Watt, 10%)
C5	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd, 200 VDC, 10%)	R7	350-0505	1	Resistor, Composition (2.7-Ohm, 1/2 Watt, 10%)
C6	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd, 200 VDC, 10%)	R8	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
C7	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd, 200 VDC, 10%)	R9	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
C8	355-0005	1	Capacitor, Plastic Dielectric (.22 Mfd, 200 VDC, 10%)	R10	350-0380	1	Resistor, Composition (510-Ohm, 1/2 Watt, 5%)
CR1	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R11	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR2	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R12	350-0552	1	Resistor, Composition (22,000-Ohm, 1/2 Watt, 10%)
CR3	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R13	350-0505	1	Resistor, Composition (2.7-Ohm, 1/2 Watt, 10%)
CR4	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R14	350-0536	1	Resistor, Composition (1000-Ohm, 1/2 Watt, 10%)
CR5	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R15	303-0169	1	Potentiometer (3.5 Megohm, 1/4 Watt, 30%)
CR6	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R16	350-0517	1	Resistor, Composition (27-Ohm, 1/2 Watt, 10%)
CR7	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R17	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
CR8	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R18	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
CR9	359-0027	1	Diode, Zener (1 Watt, 7.5 Volt, 5%)	R19	350-0517	1	Resistor, Composition (27-Ohm, 1/2 Watt, 10%)
CR10	364-0017	1	Diode, Rectifier (8 Amp, 30 Volt)	R20	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR11	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R21	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR12	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R22	350-0505	1	Resistor, Composition (2.7-Ohm, 1/2 Watt, 10%)
CR13	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R23	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR14	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R24	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR15	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R25	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
CR16	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R21	350-0380	1	Resistor, Composition (510-Ohm, 1/2 Watt, 5%)
CR17	364-0017	1	Diode, Rectifier (8 Amp, 30 Volt)	R27	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR18	364-0017	1	Diode, Rectifier (8 Amp, 30 Volt)	R28	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR19	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R29	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
CR20	364-0017	1	Diode, Rectifier (8 Amp, 30 Volt)	R30	350-0505	1	Resistor, Composition (2.7-Ohm, 1/2 Watt, 10%)
CR21	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R31	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
K1	307-1039	1	Relay, Armature (12 Volt)	R32	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
K2	307-1039	1	Relay, Armature (12 Volt)	R33	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
Q1	362-0025	1	Transistor	R34	350-0517	1	Resistor, Composition (27-Ohm, 1/2 Watt, 10%)
Q2	362-0025	1	Transistor	R35	350-1128	1	Resistor, Composition (220-Ohm, 2 Watt, 10%)
Q3	361-0003	1	Transistor	R36	350-0584	1	Resistor, Composition (10 Megohm, 1/2 Watt, 10%)
Q4	362-0008	1	Transistor	S1	308-0280	1	Switch, Push - DPDT (1A, 28 VDC/.45A, 115 VAC)
Q5	362-0008	1	Transistor	TB1	332-1231	1	Printed Wiring Board
Q6	362-0008	1	Transistor				
Q7	362-0031	1	Transistor				
Q8	362-0031	1	Transistor				
Q9	361-0003	1	Transistor				
Q10	362-0008	1	Transistor				
Q11	362-0008	1	Transistor				
Q12	362-0008	1	Transistor				
Q13	362-0008	1	Transistor				
Q14	362-0008	1	Transistor				
R1	350-0526	1	Resistor, Composition (100-Ohm, 1/2 Watt, 10%)				

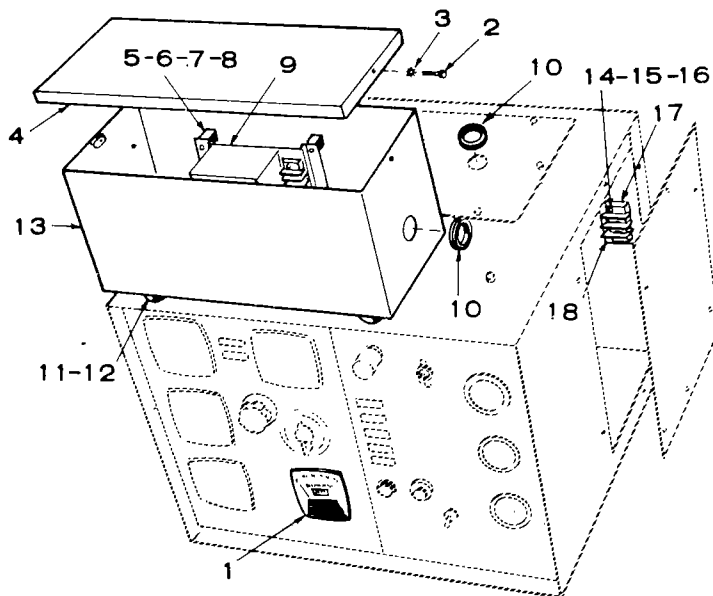
ENGINE CONTROL MONITOR GROUP - 12 VOLT PENN STATE (1 Fault Light)

300-0730



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	300-0730		Monitor, Engine Control - 12 Volt (Penn State)	Q2	362-0025	1	Transistor
C1			Not used	Q3	362-0025	1	Transistor
C2	355-0005	1	Capacitor, Plastic Dielectric (22 Mfd, 200 VDC, 10%)	Q4	362-0008	1	Transistor
C3	356-0040	1	Capacitor, Electrolytic (10 Mfd, 20 Volt)	R1	350-0536	1	Resistor, Composition (1000-Ohm, 1/2 Watt, 10%)
C4			Not used	R2	350-0526	1	Resistor, Composition (100-Ohm, 1/2 Watt, 10%)
C5	355-0005	1	Capacitor, Plastic Dielectric (22 Mfd, 200 VDC, 10%)	R3	350-0552	1	Resistor, Composition (22,000-Ohm, 1/2 Watt, 10%)
CR1	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R4	303-0169	1	Potentiometer (3.5 Megohm, 1/4 Watt, 30%)
CR2	359-0027	1	Diode, Zener (1 Watt, 7.5 Volt, 5%)	R5	350-0572	1	Resistor, Composition (1 Megohm, 1/2 Watt, 10%)
CR3	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R6	350-0505	1	Resistor, Composition (2.7-Ohm, 1/2 Watt, 10%)
CR4	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R7	350-0517	1	Resistor, Composition (27-Ohm, 1/2 Watt, 10%)
CR5	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R8	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR6	357-0004	1	Diode, Rectifier (400 MA, 400 Volt)	R9	350-0529	1	Resistor, Composition (270-Ohm, 1/2 Watt, 10%)
CR7	364-0017	1	Diode, Rectifier (8 Amp, 30 Volt)	R10	350-0540	1	Resistor, Composition (2200-Ohm, 1/2 Watt, 10%)
K1	307-1039	1	Relay, Armature (12 Volt)	R11	350-0971	1	Resistor, Composition (220-Ohm, 2 Watt, 5%)
K2	307-1039	1	Relay, Armature (12 Volt)	TB1	332-1246	1	Printed Wiring Board
Q1	361-0003	1	Transistor				

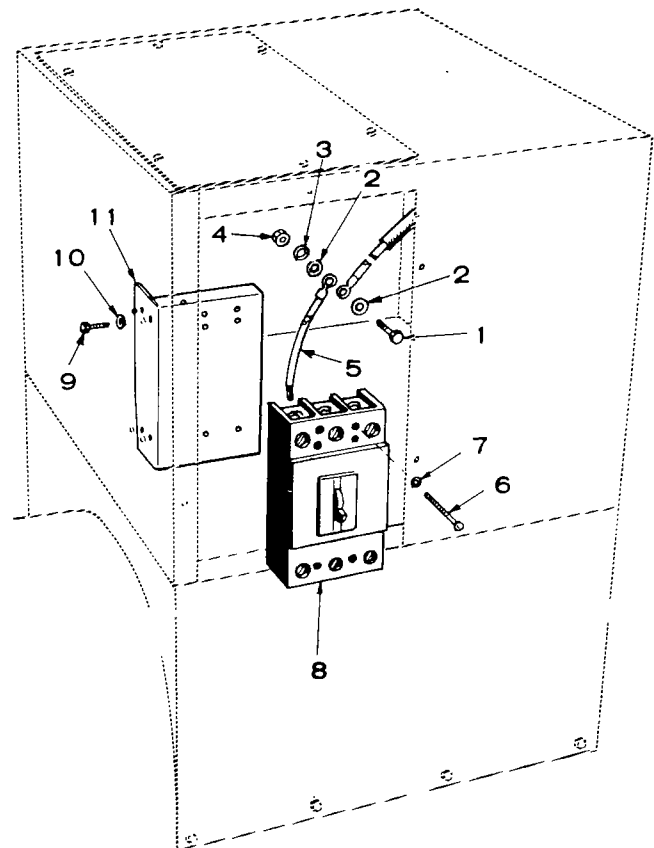
OPTIONAL WATTMETER



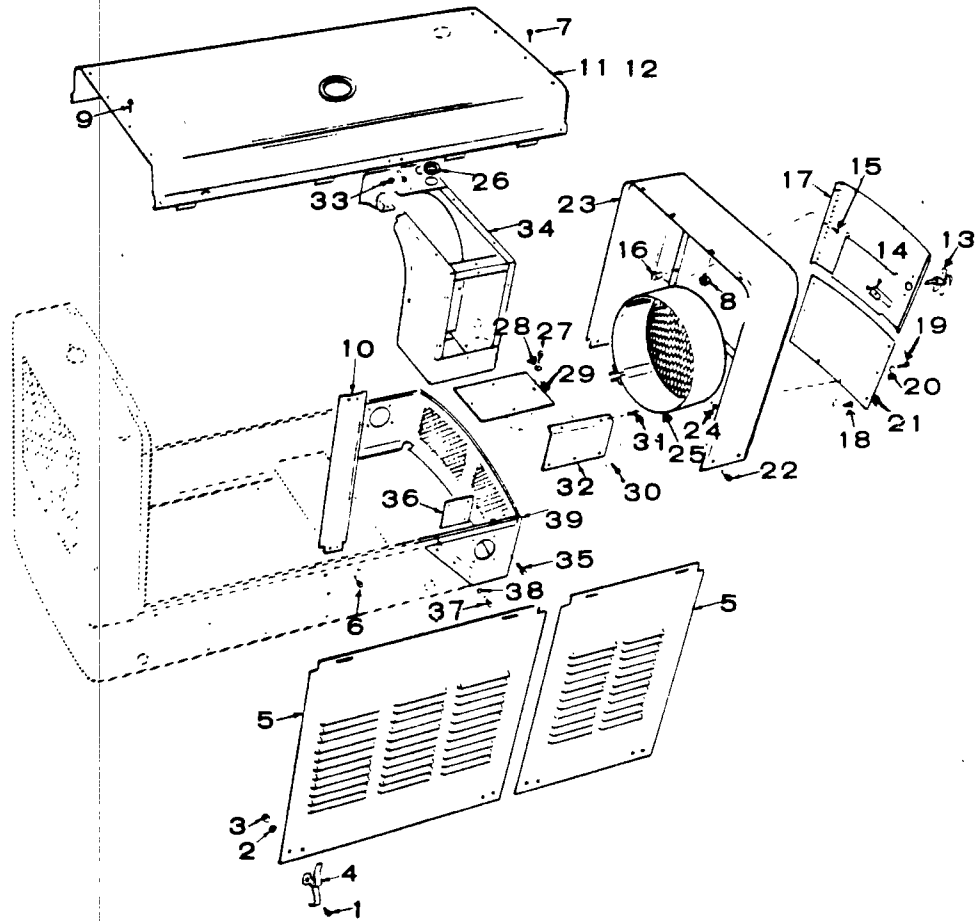
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	302-0766	1	Wattmeter (0-35KW)
2	815-0026	2	Screw, Machine - Truss Head (#10-32 x 3/8")
3	853-0008	2	Washer, Lock - External Tooth (#10)
4	301-3476	1	Cover, Box - Transducer
5	860-0008	8	Nut, Hex (#8-32)
6	853-0005	8	Washer, Lock - External Tooth (#8)
7	526-0003	8	Washer, Flat (11/64" ID x 3/8" OD x 1/32" THK)
8	402-0354	4	Mount, Vibration
9	302-0902	1	Transducer, Watt
10	508-0001	2	Grommet, Rubber (1-1/6" OD)
11	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
12	402-0070	4	Mount, Vibration
13	301-3477	1	Box, Transducer
14	812-0063	4	Screw, Machine - Round Head (#6-32 x 1/2")
15	853-0003	4	Washer, Lock - External Tooth (#6)
16	860-0006	4	Nut, Hex (#6-32)
17	332-0609	1	Board, Terminal (2 Place)
18	332-0610	1	Strip, Marker

OPTIONAL CIRCUIT BREAKER

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	800-0028	5	Screw, Cap - Hex Head (5/16-18 x 1")
2	526-0022	10	Washer, Flat (21/64" ID x 9/16" OD x 1/16" Thk)
3	850-0045	5	Washer, Lock - Spring (5/16)
4	862-0015	5	Nut, Hex (5/16-18)
5	226-0891	3	Lead, Electrical
6	812-0094	4	Screw, Machine - Round Head (#8-32 x 3-5/8")
7	850-0025	4	Washer, Lock - Spring (#8)
8	320-0412	1	Circuit Breaker (3 Pole, 100 Amp, 240 VAC)
9	800-0003	2	Screw, Cap - Hex Head (1/4-20 x 1/2")
10	850-0040	2	Washer, Lock - Spring (1/4)
11	301-3197	1	Bracket, Angle - Circuit Breaker Mounting



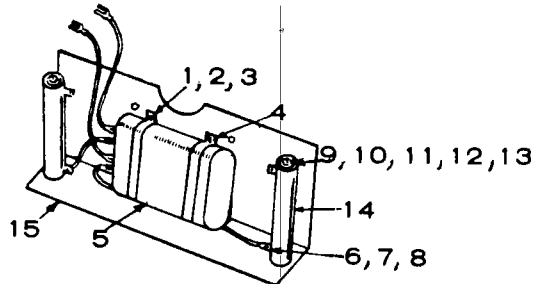
OPTIONAL HOUSING



OPTIONAL HOUSING

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	813-0098	16	Screw, Machine - Round Head (#10-32 x 3/8")	20	850-0030	6	Washer, Lock - Spring (#10)
2	850-0030	16	Washer, Lock - Spring (#10)	21	405-1780	1	Panel, Access - Rear
3	870-0053	16	Nut, Hex (#10-32)	22	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
4	406-0105	8	Clamp, Door	23	405-1812	1	Panel, Housing - Rear
5	DOOR, LOUVERED			24	821-0010	4	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
	405-1808	2	Door, Louvered - Engine Section	25	234-0369	1	Cover, End Bell - Generator
	405-1832	2	Door, Louvered - Generator Section	26	508-0203	2	Bushing, Nylon (3/4" ID x 1-9/32" OD)
6	821-0014	4	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	27	813-0098	4	Screw, Machine - Round Head (#10-32 x 3/8")
7	821-0016	6	Screw, Self-locking - Hex Head (5/16-18 x 3/4")	28	850-0030	4	Washer, Lock - Spring (#10)
8	870-0113	6	Nut, Clinch (5/16-18)	29	301-3195	1	Plate, Blank - Bottom, Junction Box
9	821-0014	6	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	30	821-0010	3	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
10	405-1814	2	Support, Housing - Center	31	821-0014	2	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
11	405-2151	1	Panel, Housing - Top (Used with standard exhaust manifold)	32	301-3196	1	Bracket, Support - Current Transformer Assembly
12	405-2207	1	Panel, Housing - Top (Used with water cooled exhaust manifold)	33	821-0010	1	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
13	406-0157	1	Handle, Latch (with keys)	34	301-3191	1	Box, Junction
14	406-0089	1	Catch, Latch	35	821-0010	8	Screw, Self-locking - Hex Head (1/4-20 x 1/2")
15	809-0059	3	Screw, Tapping - Pan Head (#14 x 1/2")	36	403-0895	2	Plate, Cover
16	870-0106	3	Nut, Spring Sheet (#14)	37	821-0010	4	Screw, Self-locking - Hex Head (1/4-20 x 1/2" lg)
17	405-1777	1	Door, Access - Rear	38	850-0050	6	Washer, Lock - Spring (3/8)
18	821-0014	2	Screw, Self-locking - Hex Head (5/16-18 x 1/2")	39	403-0894	1	Adapter, Chassis - Rear
19	813-0098	6	Screw, Machine - Round Head (#10-32 x 3/8")				

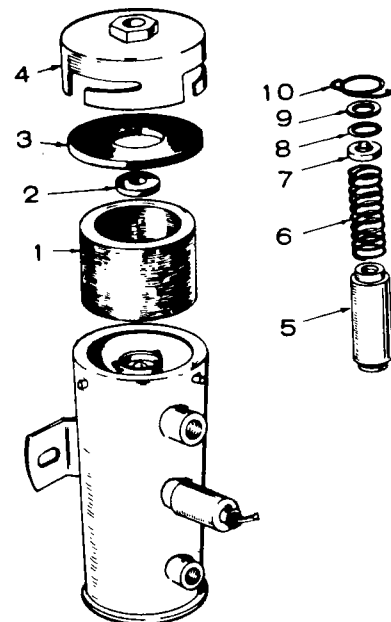
OPTIONAL VOLTAGE REGULATOR FILTER



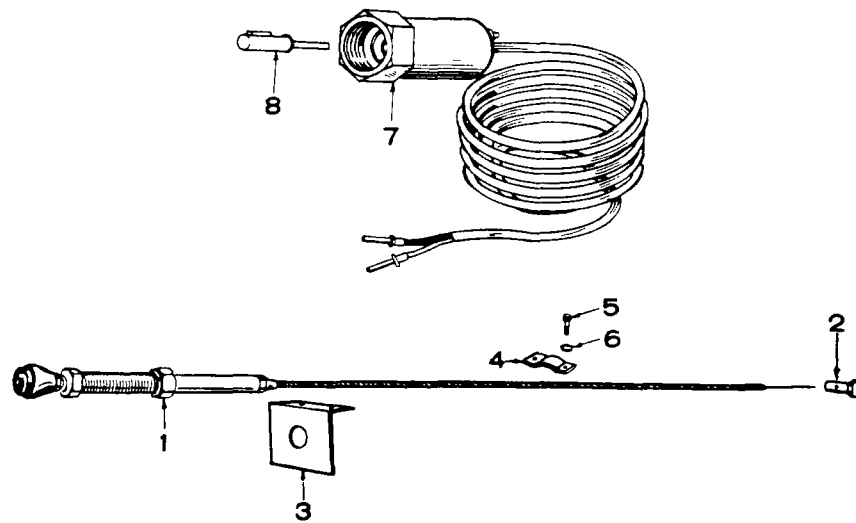
REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	232-2219	1	Filter, Voltage Regulator (Complete)
1	812-0061	4	Screw, Machine - Round Head (#6-32 x 3/8")
2	850-0020	5	Washer, Lock - Spring (#6)
3	860-0006	4	Nut, Hex (#6-32)
4	312-0189	2	Bracket, Hold-down - Capacitor
5	312-0188	1	Capacitor, Plastic Dielectric, Metal Case (15 Mfd, 440 VAC)
6	815-0001	4	Screw, Machine - Binding Head, Brass (#6-32 x 1/4")
7	853-0003	4	Washer, Lock - External Tooth (#6)
8	860-0006	4	Nut, Hex (#6-32)
9	812-0165	2	Screw, Machine - Round Head (1/4-20 x 4-1/2")
10	304-0427	4	Washer, Shoulder - Centering
11	304-0292	2	Insulator, Disk
12	850-0040	2	Washer, Lock - Spring (1/4)
13	862-0001	2	Nut, Hex (1/4-20)
14	354-0025	2	Resistor, Wirewound (10-Ohm, 100 Watts, 5%)
15	232-2218	1	Bracket, Angle - Mounting

OPTIONAL ELECTRIC FUEL PUMP

REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	149-0554	1	Pump, Fuel
1	149-1445	1	Filter
2	149-1447	1	Magnet
3	149-1446	1	Gasket, Cover
4	149-1453	1	Cover
5	149-1452	1	Plunger
6	149-0705	1	Spring, Plunger Return
7	149-1451	1	Spring Cup & Valve
8	149-1450	1	Gasket, Spring Cup
9	149-1449	1	Washer, Cup Gasket
10	149-1448	1	Retainer, Cup & Plunger



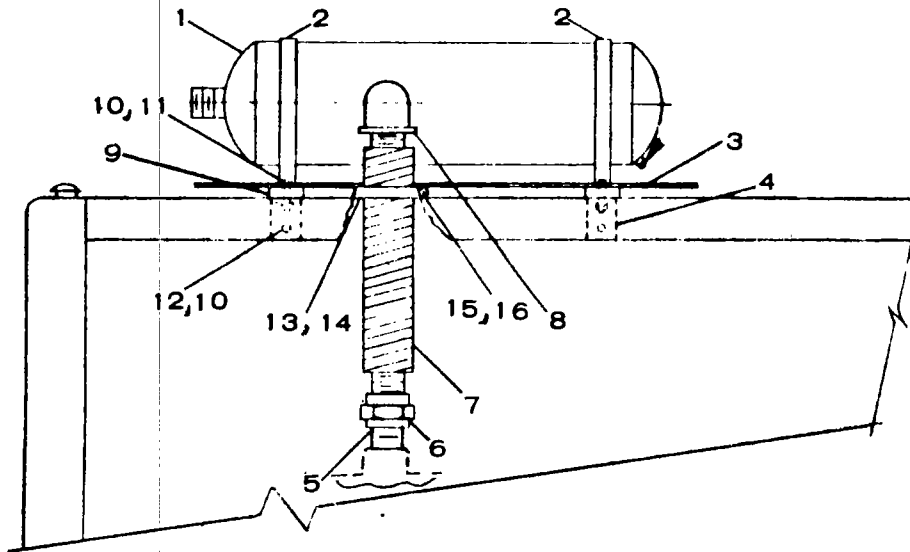
MISCELLANEOUS OPTIONAL ENGINE PARTS



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
VERNIER THROTTLE ASSEMBLY (Includes Parts Marked *)			
1	152-0120	1	*Cable, Throttle
2	152-0158	1	*Swivel
3	151-0230	1	*Bracket, Throttle Mounting
4	152-0036	1	*Clamp, Cable
5	815-0104	2	*Screw, Machine - Fillister Head (#8-32 x 5/16" lg)
6	526-0052	2	*Washer, Flat (17/64" ID x 9/16" OD x 1/32" Thk)
7	302-0967	1	Tang, Drive - Tachometer
8	302-0750	1	Sender, Tachometer

**OPTIONAL
EXHAUST MUFFLER INSTALLATION
(Begin Serial #1760-170736 During Spec B)**

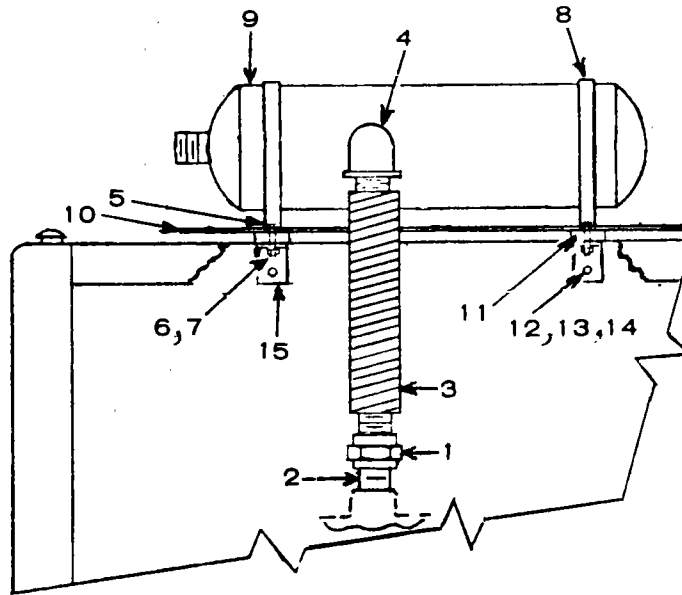
179-1520



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
1	155-0988	1	Muffler, Exhaust
2	140-0649	2	Band, Mounting
3	155-0978	1	Shield, Heat
4	155-0789	2	Support
5	505-0173	1	Nipple, Close (2" x 4")
6	505-0494	1	Union (2")
7	155-1591	1	Tube Assembly, Exhaust
8	505-0175	1	Elbow, Pipe (2" x 90°)
9	155-1430	4	Spacer, Muffler
10	870-0048	10	Nut, Locking (5/16-18)
11	800-0073	4	Screw, Cap - Hex Head (5/16-18 x 3" lg)
12	800-0026	6	Screw, Cap - Hex Head (5/16-18 x 3/4" lg)
13	155-1421	1	Shield, Rain
14	895-0158	1	Asbestos
15	813-0105	2	Screw, Machine - Round Head (#10-32 x 1" lg)
16	870-0188	2	Nut, Lock (#10-32)

**OPTIONAL
EXHAUST MUFFLER INSTALLATION
(Prior to Serial #1760-170735 During Spec B)**

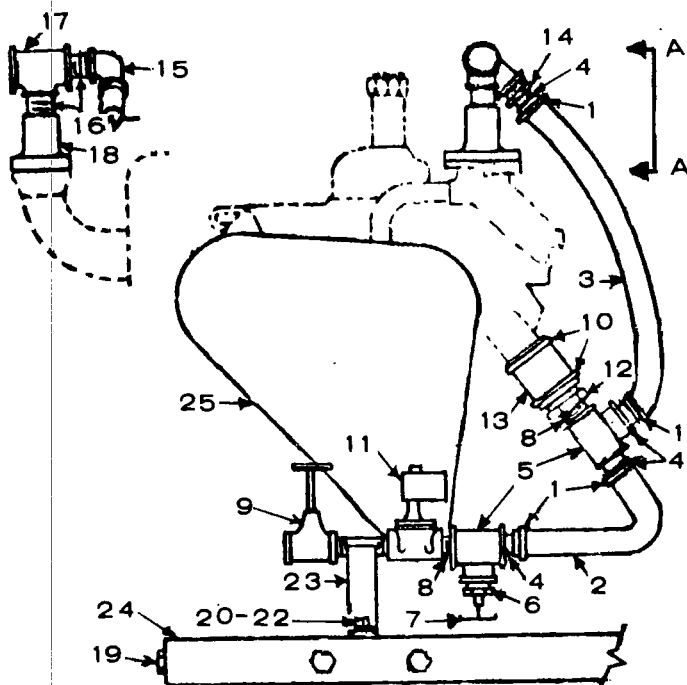
179-1520



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-1520		Installation of Exhaust Muffler
1	505-0454	1	Union, Pipe
2	505-0172	1	Nipple, Pipe - Close
3	155-1115	1	Pipe, Exhaust - Flexible
4	505-0175	1	Elbow, Pipe - 90 Degree
5	800-0028	4	Screw, Cap - Hex Head (5/16-18 x 1")
6	850-0045	4	Washer, Lock - Spring (5/16)
7	862-0015	4	Nut, Hex (5/16-18)
8	140-0649	2	Strap, Retaining
9	155-0988	1	Muffler, Exhaust
10	155-0978	1	Heat, Shield
11	526-0172	4	Washer, Flat (1/2" ID x 2-1/4" OD x 1/4" THK)
12	800-0026	6	Screw, Cap - Hex Head (5/16-18 x 3/4")
13	850-0045	6	Washer, Lock - Spring (5/16-18)
14	862-0015	6	Nut, Hex (5/16-18)
15	155-0789	2	Bracket, Angle - Support

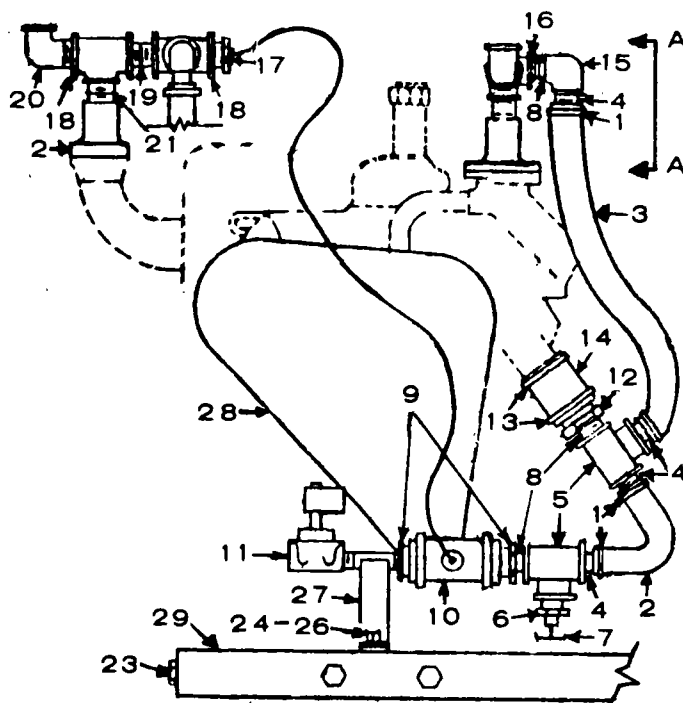
179-1023

OPTIONAL CITY WATER COOLING INSTALLATION



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-1023		Installation of City Water Cooling
1	503-0189	4	Clamp, Hose
2	503-0191	14"	Hose, Rubber
3	503-0191	20"	Hose, Rubber
4	505-0185	4	Nipple, Pipe - Half (1/2" x 1-1/2")
5	505-0108	2	Tee, Pipe (1/2")
6	505-0018	1	Reducer, Pipe (1/2" x 1/4")
7	504-0063	1	Cock, Drain
8	505-0100	2	Nipple, Pipe - Close (1/2" x 1-1/8")
9	504-0019	1	Valve, Globe
10	503-0365	2	Clamp, Hose
11	307-0833	1	Valve, Solenoid (12 VDC)
12	110-0576	1	Adapter, Pipe to Hose
13	503-0356	3"	Hose, Rubber
14	505-0022	1	Reducer, Pipe (1/2" x 1")
15	505-0041	1	Elbow, Pipe - Street, 90° (1")
16	505-0004	2	Nipple, Pipe - Close (1" x 1-1/2")
17	505-0304	1	Tee, Pipe (1")
18	130-0954	1	Adapter, Water Outlet
19	821-0014	6	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
20	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
21	850-0040	2	Washer, Lock - Spring (1/4)
22	862-0001	2	Nut, Hex (1/4-20)
23	110-0526	1	Bracket & Nipple Assembly
24	130-0499	1	Plate, Mounting
25	130-0957	1	Guard, Belt

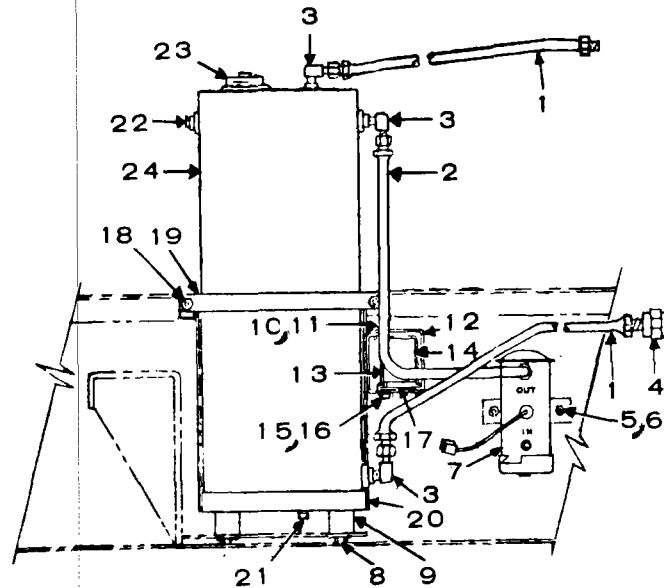
OPTIONAL **CITY WATER COOLING WITH REGULATOR** **INSTALLATION**



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-1024		Installation of City Water Cooling with Regulator
1	503-0189	4	Clamp, Hose
2	503-0191	13"	Hose, Rubber
3	503-0191	20"	Hose, Rubber
4	505-0185	4	Nipple, Pipe - Half (1/2" x 1-1/2")
5	505-0108	2	Tee, Pipe (1/2")
6	505-0018	1	Reducer, Pipe (1/2" x 1/4")
7	504-0063	1	Cock, Drain
8	505-0100	3	Nipple, Pipe - Close (1/2" x 1-1/8")
9	505-0021	2	Reducer, Pipe (3/4" x 1/2")
10	309-0241	1	Valve, Temperature Regulating (Includes Sensor)
11	307-0833	1	Valve, Solenoid (12 VDC)
12	110-0576	1	Adapter, Pipe to Hose
13	503-0365	2	Clamp, Hose
14	503-0356	3"	Hose, Rubber
15	505-0040	1	Elbow, Pipe - 90°
16	505-0022	1	Reducer, Pipe (1/2" x 1")
17	505-0129	1	Reducer, Pipe (1" x 3/4")
18	505-0304	2	Tee, Pipe (1")
19	505-0086	1	Nipple, Pipe - Half (1" x 2-1/2")
20	505-0003	1	Elbow, Pipe - Street, 90° (1")
21	505-0004	1	Nipple, Pipe - Close (1" x 1-1/2")
22	130-0954	1	Adapter, Water Outlet
23	821-0014	6	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
24	800-0007	2	Screw, Cap - Hex Head (1/4-20 x 1")
25	850-0040	2	Washer, Lock - Spring (1/4)
26	862-0001	2	Nut, Hex (1/4-20)
27	110-0526	1	Bracket & Nipple Assembly
28	130-0957	1	Guard, Belt
29	130-0499	1	Plate, Mounting

OPTIONAL **DAY FUEL TANK INSTALLATION**

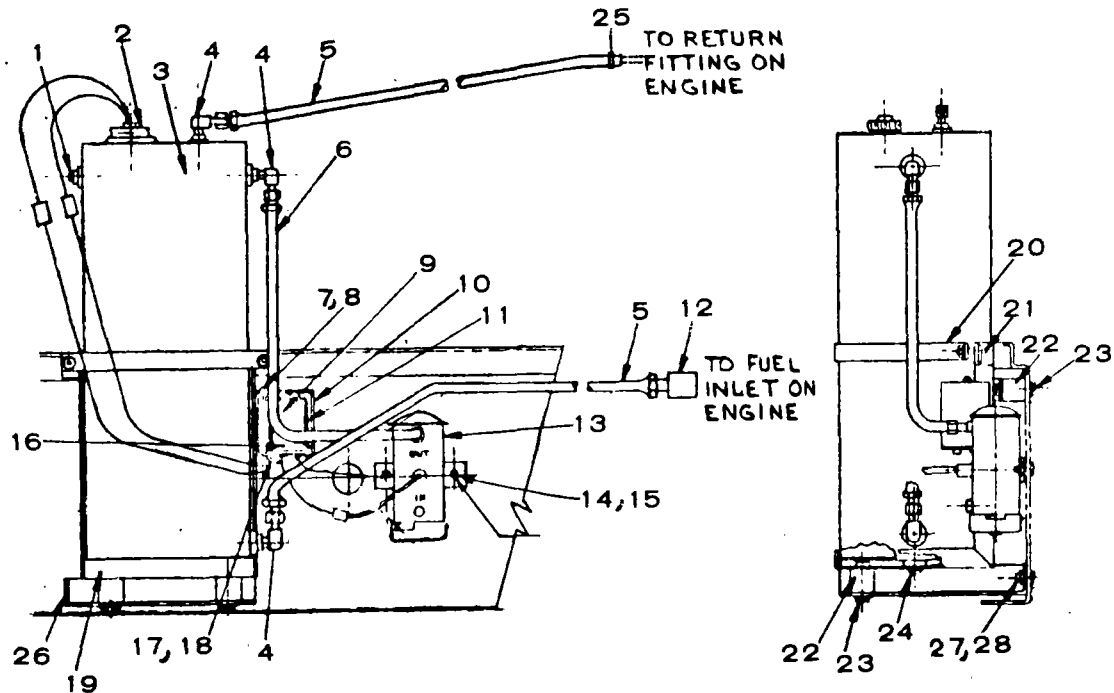
179-0441



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0441		Installation of Day Fuel Tank
1	501-0008	2	Line, Fuel - Flexible
2	501-0015	1	Line, Fuel - Flexible
3	502-0041	3	Elbow, Pipe - Street, Brass (1/4" x 1/4")
4	502-0051	1	Coupling, Pipe - Brass (1/4" x 1/4")
5	821-0018	2	Screw, Self-locking - Hex Head (1/4-20 x 5/8")
6	870-0212	2	Nut, Hex - Self-locking
7	149-0554	1	Pump, Fuel - Electric (See Separate Group for Components)
8	821-0014	8	Screw, Self-locking - Hex Head (5/16-18 x 1/2")
9	402-0070	4	Mount, Vibration
10	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8")
11	850-0030	1	Washer, Lock - Spring (#10)
12	415-0326	1	Cover, Relay
13	307-1157	1	Spring, Retaining - Relay
14	307-1058	1	Relay, Armature - 12 VDC
15	812-0001	2	Screw, Machine - Round Head (#6-32 x 3/8")
16	870-1183	2	Nut, Hex - With External Tooth Lockwasher (#6-32)
17	323-0897	1	Socket, Relay (Includes leads)
18	821-0013	2	Screw, Self-locking - Hex Head (1/4-20 x 1")
19	415-0323	1	Strap, Retaining
20	415-0324	1	Bracket, Angle - Tank Support
21	505-0110	1	Plug, Pipe - Square Head (3/8")
22	505-0054	1	Plug, Pipe - Square Head (1/4")
23	415-0321	1	Switch, Float - Liquid Level
24	415-0325	1	Tank, Fuel

**OPTIONAL
DAY TANK INSTALLATION**
Prior to Serial #A780293759 During Spec C

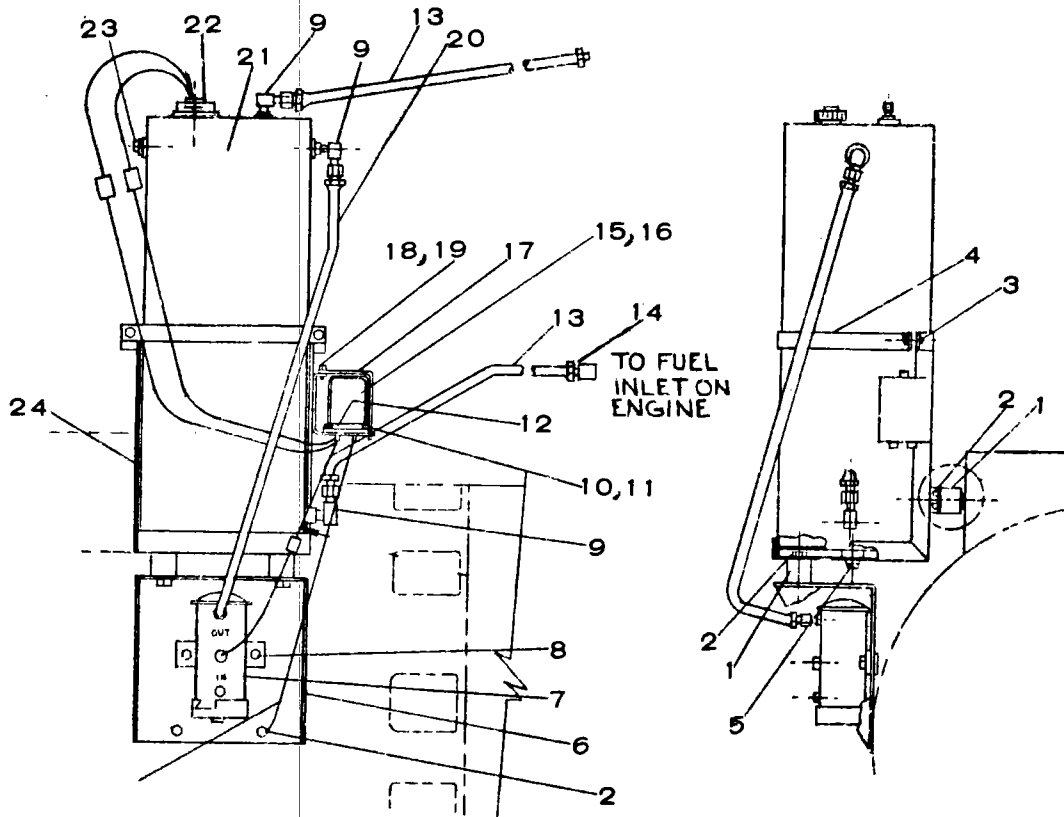
179-0473



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0473	1	Day Tank, Installation - Complete	16	323-0897	1	Socket Assembly, Relay
1	505-0054	1	Plug, Square Head	17	870-1183	2	Nut, Hex - Self Locking
2	415-0335	1	Switch, Assembly, Tank Float	18	812-0061	2	Screw, Cap - Round Head (#6-32 x 3/8" lg)
3	415-0325	1	Tank, Day	19	415-0324	1	Bracket, Day Tank Mounting
4	502-0041	3	Elbow, Inverted Male	20	415-0323	1	Strap, Day Tank Mounting
5	501-0008	2	Line, Fuel	21	821-0013	2	Screw, Cap - Locking Head (1/4-20 x 1" lg)
6	501-0015	1	Line, Fuel	22	402-0078	4	Mount, Rubber
7	813-0098	1	Screw, Cap - Round Head (#10-32 x 3/8" lg)	23	821-0014	8	Screw, Cap - Locking Head (5/16-18 x 1/2" lg)
8	850-0030	1	Washer, Lock - Spring (#10)	24	505-0110	1	Plug, Square Head (3/8")
9	307-1058	1	Relay	25	503-0085	1	Clamp, Hose
10	415-0326	1	Cover, Day Tank Control	26	403-1118	1	Bracket, Day Tank
11	307-1157	1	Spring, Relay Holddown	27	821-0016	2	Screw, Cap - Locking Head (5/16-18 x 3/4" lg)
12	502-0051	1	Coupling	28	870-0048	2	Nut, Hex - Self Locking (5/16-18)
13	149-0554	1	Pump, Fuel (Electric)	29	505-0831	1	Nipple, Pipe
14	821-0018	2	Screw, Cap - Locking Head (1/4-20 x 5/8" lg)	30	505-0014	1	Coupling, Pipe
15	870-0212	2	Nut, Hex - Self Locking (1/4-20)				

**OPTIONAL
DAY TANK INSTALLATION - HOUSED SETS**
Begin Serial #A780293759 During Spec C

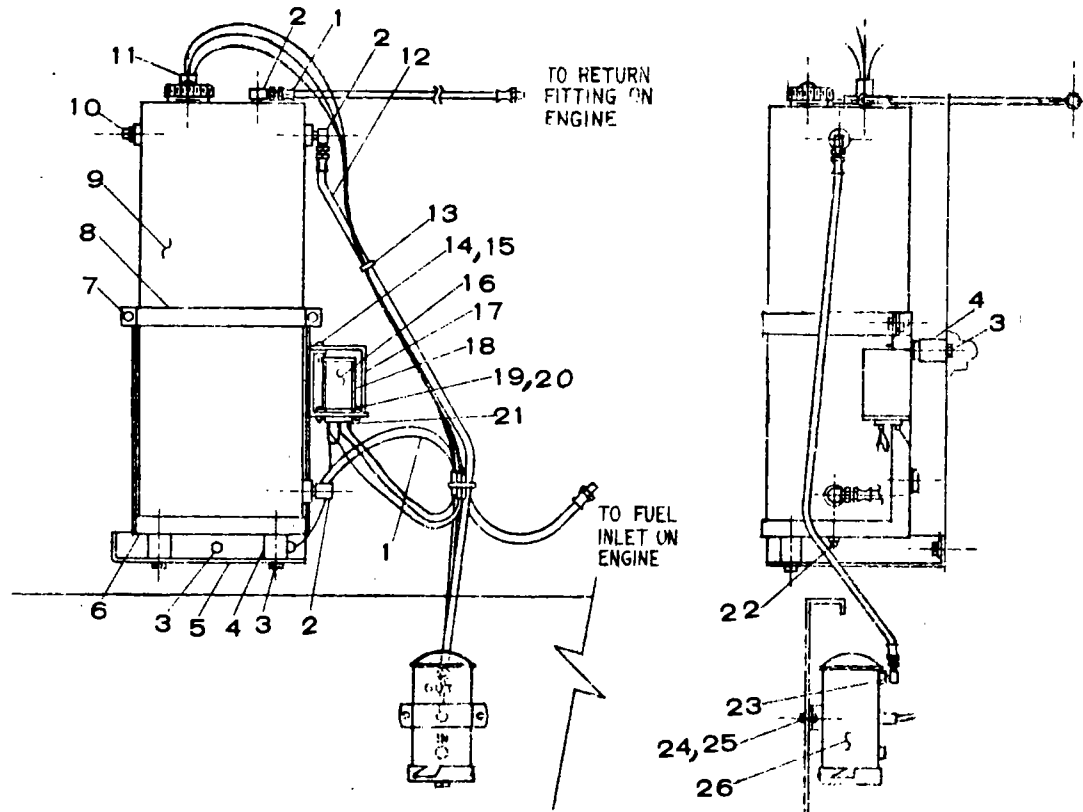
179-1034



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION	REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-1034	1	Tank Installation, Day - Complete	12	323-0897	1	Socket, Relay
1	402-0078	4	Mount, Rubber	13	501-0008	2	Line, Fuel
2	821-0014	8	Screw, Cap - Locking Head (5/16-18 x 1/2" lg)	14	502-0051	1	Coupling
3	821-0013	2	Screw, Cap - Locking Head (1/4-20 x 1" lg)	15	307-1058	1	Relay - 12 Volt
4	415-0323	8	Strap, Day Tank Mounting	16	307-1157	1	Spring, Relay Holddown
5	505-0110	1	Plug, Square Head (3/8")	17	415-0326	1	Cover, Day Tank Control
6	130-1005	1	Bracket, Day Tank	18	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8" lg)
7	149-0554	1	Pump, Fuel (Electric)	19	850-0030	1	Washer, Lock - Spring (#10)
8	821-0018	2	Screw, Cap - Locking Head (1/4-20 x 5/8" lg)	20	501-0015	1	Line, Fuel
9	502-0041	3	Elbow, Inverted Male	21	415-0325	1	Tank, Day
10	870-1183	2	Nut, Hex - Self Locking (#6-32)	22	415-0335	1	Switch Assembly, Tank Float
11	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8" lg)	23	505-0054	1	Plug, Square Head (1/4")
				24	415-0324	1	Bracket, Day Tank
				25	821-0016	2	Screw, Cap - Locking Head (5/16-18 x 3/4" lg)
				26	870-0048	2	Nut, Hex - Self Locking (5/16-18)

OPTIONAL
DAY TANK INSTALLATION - UNHOUSED SETS
Begin Serial #A780293759 During Spec C

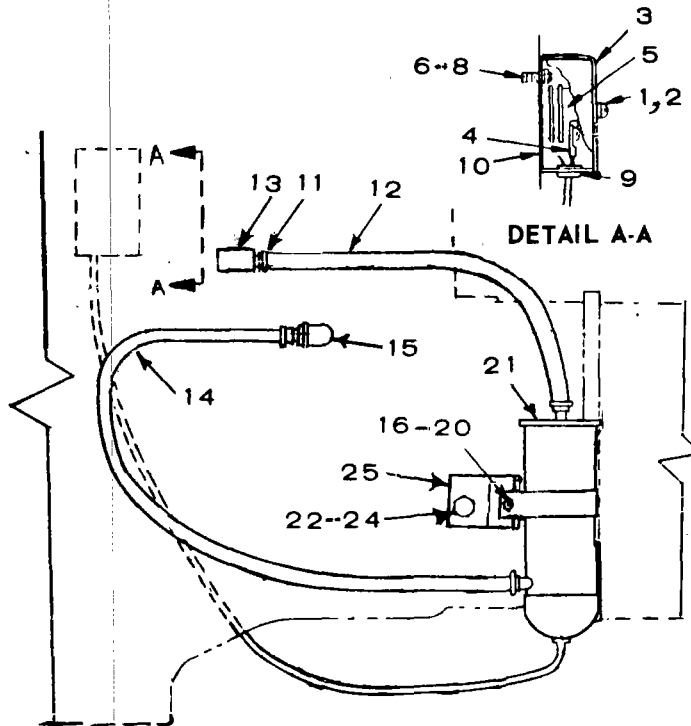
179-0465



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-0465	1	Installation, Day Tank - Complete
1	501-0007	2	Line, Fuel (24" lg)
2	502-0041	3	Elbow, Inverted Male
3	821-0014	10	Screw, Cap - Locking Head (5/16-18 x 1/2" lg)
4	402-0078	4	Dampener, Vibration
5	403-1116	1	Bracket, Day Tank
6	415-0324	1	Bracket, Day Tank Mounting
7	821-0013	2	Screw, Cap - Locking Head (1/4-20 x 1" lg)
8	415-0323	8	Strap, Day Tank Mounting
9	415-0325	1	Tank, Day
10	505-0054	1	Plug, Square Head
11	415-0335	1	Switch Assembly, Tank Float
12	501-0008	1	Line, Fuel
13	332-0942	2	Tie, Cable
14	813-0098	1	Screw, Machine - Round Head (#10-32 x 3/8" lg)
15	850-0030	1	Washer, Lock - Spring (#10)
16	307-1058	1	Relay, 12 Volt
17	415-0326	1	Cover, Day Tank Control
18	307-1157	1	Spring, Relay Holddown
19	870-1183	2	Nut, Hex - Self Locking (#6-32)
20	812-0061	2	Screw, Machine - Round Head (#6-32 x 3/8" lg)
21	323-0897	1	Socket Assembly, Relay
22	505-0110	1	Plug, Square Head
23	502-0020	1	Elbow, Street (90°)
24	821-0018	2	Screw, Cap - Locking Head (1/4-20 x 5/8" lg)
25	870-0212	2	Nut, Hex - Self Locking (1/4-20)
26	149-0554	1	Pump, Fuel - Electric

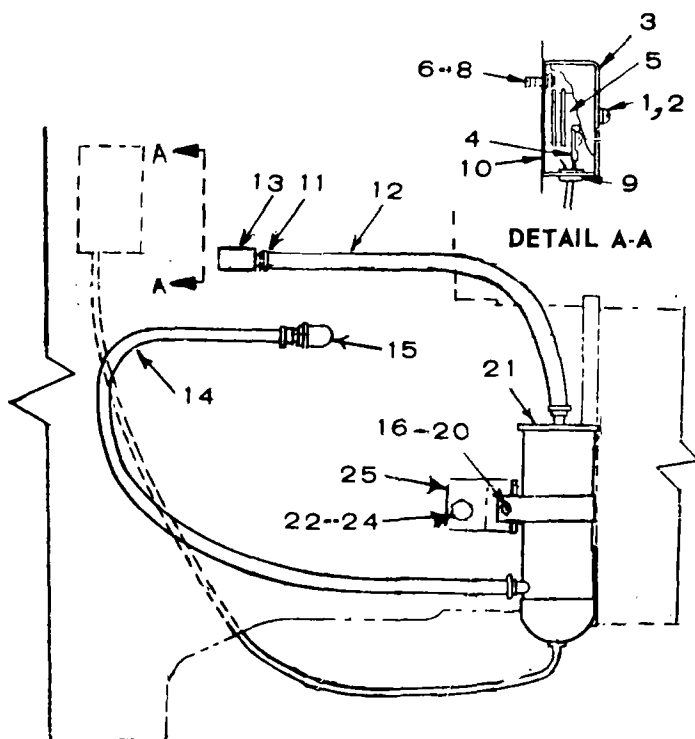
OPTIONAL
WATER JACKET HEATER INSTALLATION
Prior to Serial #A780293759 During Spec C

179-2021



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-2021		Installation of Water Jacket Heater
1	812-0076	2	Screw, Machine - Round Head (#8-32 x 5/16")
2	850-0025	2	Washer, Lock - Spring (#8)
3	333-0013	1	Cover, Box - Thermostat
4	332-0149	1	Terminal, Lug
5	309-0285	1	Thermostat
6	520-0446	2	Stud (#10-32 x 3/4")
7	850-0050	2	Washer, Lock - Spring (#10)
8	870-0053	2	Nut, Hex (#10-32)
9	509-0008	1	Grommet, Rubber
10	333-0012	1	Box, Thermostat
11	503-0183	4	Clamp, Hose
12	503-0386	24"	Hose, Rubber (5/8" ID)
13	502-0054	1	Elbow, Pipe - Street
14	503-0386	29"	Hose, Rubber (5/8" ID)
15	505-0011	1	Elbow, Pipe - Street
16	800-0031	1	Screw, Cap - Hex Head (5/16-18 x 1-1/2")
17	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" THK)
18	856-0008	2	Washer, Lock - External/Internal Tooth (5/16)
19	850-0045	1	Washer, Lock - Spring (5/16)
20	862-0015	1	Nut, Hex (5/16-18)
21	333-0052	1	Heater, Water (1500 Watt, 120 VAC)
22	800-0088	1	Screw, Cap - Hex Head (1/2-13 x 3/4")
23	850-0060	1	Washer, Lock - Spring (1/2)
24	856-0013	1	Washer, Lock - External/Internal Tooth (1/2)
25	130-0755	1	Bracket, Angle

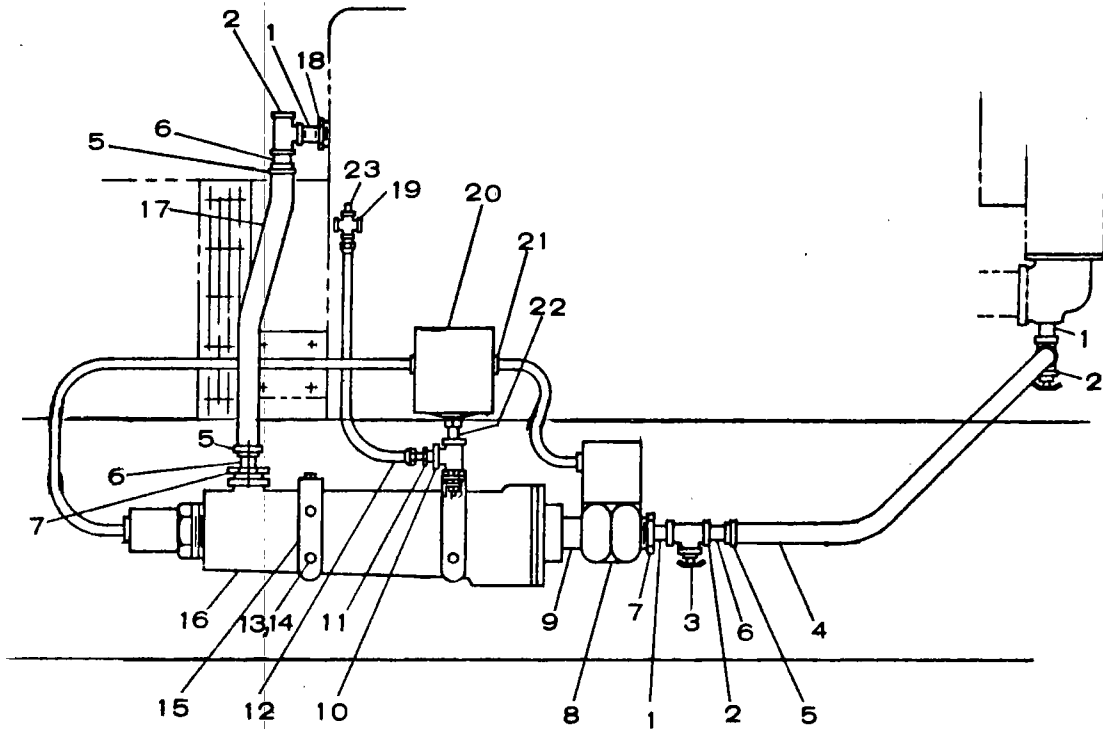
OPTIONAL WATER JACKET HEATER INSTALLATION 240 VOLT



REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-2024		Installation of Water Jacket Heater
1	812-0076	2	Screw, Machine - Round Head (#8-32 x 5/16")
2	850-0025	2	Washer, Lock - Spring (#8)
3	333-0013	1	Cover, Box - Thermostat
4	332-0149	1	Terminal, Lug
5	309-0285	1	Thermostat
6	520-0446	2	Stud (#10-32 x 3/4")
7	850-0050	2	Washer, Lock - Spring (#10)
8	870-0053	2	Nut, Hex (#10-32)
9	509-0008	1	Grommet, Rubber
10	333-0012	1	Box, Thermostat
11	503-0183	4	Clamp, Hose
12	503-0386	24"	Hose, Rubber (5/8" ID)
13	502-0054	1	Elbow, Pipe - Street
14	503-0386	29"	Hose, Rubber (5/8" ID)
15	505-0011	1	Elbow, Pipe - Street
16	800-0031	1	Screw, Cap - Hex Head (5/16-18 x 1-1/2")
17	526-0115	2	Washer, Flat (11/32" ID x 11/16" OD x 1/16" THK)
18	856-0008	2	Washer, Lock - External/Internal Tooth (5/16)
19	850-0045	1	Washer, Lock - Spring (5/16)
20	862-0015	1	Nut, Hex (5/16-18)
21	333-0073	1	Heater, Water (2000 Watt, 240 VAC)
22	800-0088	1	Screw, Cap - Hex Head (1/2-13 x 3/4")
23	850-0060	1	Washer, Lock - Spring (1/2)
24	856-0013	1	Washer, Lock - External/Internal Tooth (1/2)
25	130-0755	1	Bracket, Angle

**OPTIONAL
WATER JACKET HEATER INSTALLATION**
Begin Serial #A780293759 During Spec C

179-2058

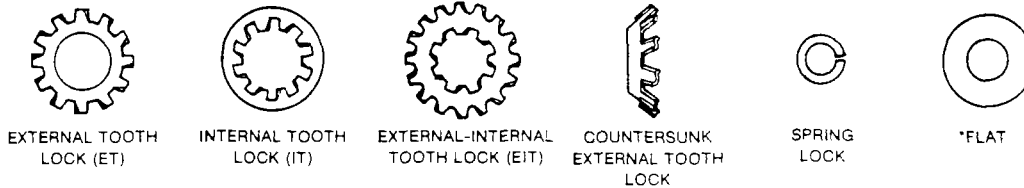


REF. NO.	PART NO.	QTY. USED	PART DESCRIPTION
	179-2058	1	Heater Installation, Water Jacket - Complete
1	505-0101	3	Nipple, Close (3/8" x 1")
2	505-0060	3	Tee, Pipe (3/8")
3	504-0028	1	Cock, Drain
4	503-0843	1	Hose
5	503-0183	4	Clamp, Hose
6	505-0135	4	Nipple, Half (3/8" x 1-1/2")
7	505-0455	2	Bushing, Reducer (1" to 3/8")
8	309-0304	1	Switch, Thermostat
9	505-0004	1	Nipple, Close (1" x 1-1/2")
10	333-0142	1	Support, Pressure Switch
11	505-0007	1	Bushing, Reducer (1/4" to 1/8")
12	501-0227	1	Line, Flex
13	821-0016	4	Screw, Cap - Locking Head (5/16-18 x 3/4" lg)
14	870-0257	4	Nut, Hex - Self Locking (5/16-18)
15	130-1192	2	Bracket, Water Heater Mounting
16	333-0158	1	Heater, Engine (2000 Watt)
17	503-0833	1	Hose
18	505-0131	1	Bushing, Reducer (3/4" to 3/8")
19	505-0783	1	Pipe, Cross (1/8")
20	309-0307	1	Switch, Oil Pressure
21	508-0008	2	Grommet, Rubber
22	505-0099	1	Nipple, Close (1/4" x 7/8")
23	505-0098	1	Nipple, Close (1/8" x 3/4")

HARDWARE IDENTIFICATION

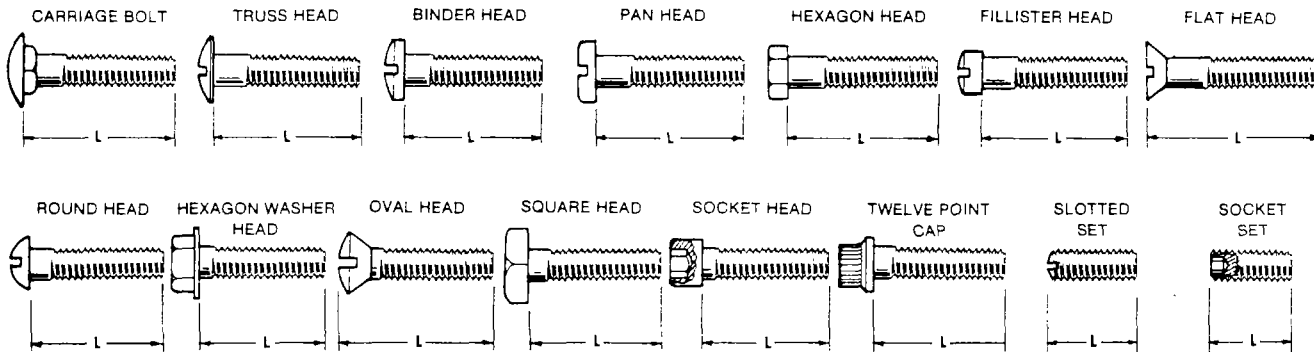
Illustrated hardware items are only for identification purposes. All hardware items listed throughout this parts catalog are steel SAE grade five (5) or lower (zinc plated with clear chromate dip) unless parts description indicates differently. All dimensions are in inches.

WASHER TYPES



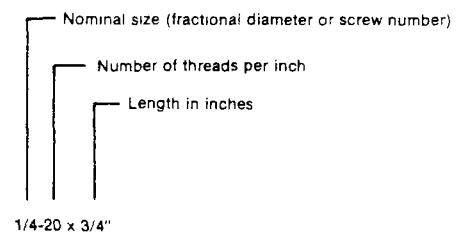
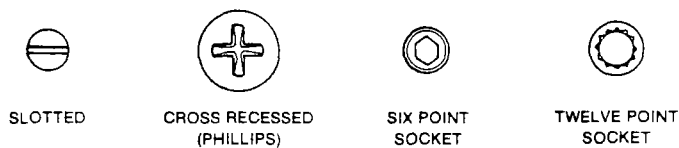
* - Flat washer dimensions given are: Inside Diameter (ID), Outside Diameter (OD) and Thickness (Thk).

BOLT AND SCREW TYPES



L - Measure length between these points.

INTERNAL DRIVE TYPES



NUT TYPES

